

The magazine for **AUSTRALIAN** radio amateurs

Volume 75 No 8

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Amateur Radio



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2007

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Our Cover this month

This month we review the Icom IC-756 Pro III transceiver.
Read the report commencing on page 21

Contributions to Amateur Radio

Amateur Radio is a forum for WIA members' amateur radio experiments, experiences opinions and news. Manuscripts with drawings and/or photos are always welcome and will be considered for publication. Articles on disc or email are especially welcome. The WIA cannot be responsible for loss or damage to any material. A pamphlet, 'How to write for Amateur Radio' is available from the National Office on receipt of a stamped self-addressed envelope.

Back Issues

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Photostat copies

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Disclaimer

The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

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A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's first and oldest National Radio Society
Founded 1910

Representing

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Member of the

International Amateur Radio Union

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Editorial Comment

Peter Freeman VK3KAI

A word about photographs

Amateur Radio receives many excellent articles for publication. Unfortunately very few of the accompanying photographs approach the description of excellent; the great majority are unpublishable or nearly so.

This is a great pity. An otherwise excellent article is reduced in 'reader entertainment' because photographs that could complement the text, and add to reader interest, are unprintable, or of such poor quality that their value to the article is, negative.

So, in an effort to explain what makes a 'good' photograph, from a publishing point of view, here are a few, very simple, requirements.

- The photo can be either black and white or colour. These days, with modern processing software, colour is generally preferred.
- The photo must be in focus. Seems a somewhat obvious thing to say, but to an amateur photographer, this is quite a difficult feat to accomplish.
- The photo must have excellent contrast, with no obvious flaws, i.e., no obvious fading, or glare, and good colour contrast between individual components of the scene.
- Think about the composition of the shot before you press the shutter release button. Are the key features arranged appropriately (or viewed from the best angle) so that the overall photo looks "pleasing to the eye".

Watch for some common pitfalls:

- Beware of foregrounds - sharp focus may be on a wine glass, or the back of someone's head, when the desired subject is blurry. Using flash when shooting groups at tables often causes tablecloths and faces in foreground to flare while wanted detail furthest from camera is in darkness.
- Beware of backgrounds. Flash against a light coloured wall creates an unattractive dark shadow. When used against a dark empty background, subjects may lose their definition. Beware of 'busy' background patterns that steal focus - e.g. curtains, paisley wallpaper, or in the case of antenna shots, dappled trees or bright sky.

- Photos are better if there is plenty of other light around. The flash should not be the only source of strong light.
- White shirts flare - take care.
- Action photos are more interesting than 'grip 'n' grin' photos. Beware of the "Bumfest". People's faces are more interesting than their backs.
- Technical photos: Don't use flash. The best light is obtained outdoors at noon on a cloudy bright summer day! Replicate this as closely as possible. Use a flat light blue background.

If you can achieve these attributes, you will have a good, publishable photo - and your article will benefit enormously.

Seems simple! Well, it is obviously not - a good, professional tip is to take as many photos as you can, in as high a resolution as you can; in that way a few will indeed be of excellent standard. These are the ones we want for publication.

Many photographers now use digital cameras instead of film. DO NOT print the photos and send us the hard copy - send us the electronic photo file in as high a resolution as possible.

Most email systems will cope with a total email size of around 10 MB, so individual images can be up to around 5 or 6 MB. If in doubt, download the high resolution image to your PC, use your image software to save a copy of the file in a smaller size and send that to us.

Images around 500 kB to 1 MB for a postcard size image are adequate for use inside the magazine. Images less than 100 kB are almost useless for reproduction. We print at 300 dpi and such images print very small.

If we want an image for the cover or inside back cover, we can contact you requesting a higher resolution (larger file size) version of the image.

Of course, you can always burn all the high resolution images to CD and post them to us.

So, take your time, take more shots than you need, and send the excellent ones in with your article. Our readers *will* be happy. And, as the author, so will be you.

Cheers,
Peter VK3KAI, on behalf of the entire production team.

ar

Member Benefits?

What do WIA members get that other amateurs do not get?

A fair question, when you think about it. In promoting itself, the WIA relies heavily on its advocacy role, which is of course for the benefit of all amateurs and potential amateurs.

But when you start to look at it carefully, there are many other benefits that the WIA provides with little distinction between members and non-members.

I raised the question at the GippsTech meeting a few weeks ago, and invited responses, not only in the meeting, but also informally after the meeting. I had done this the year before, and over the weekend I had received a number of thoughtful and helpful comments, last year on a completely different issue.

The question had started to emerge for me when we were considering the whole management of the QSL bureaux.

The WIA had promised, on the restructure, "to provide as soon as reasonably practical and at no cost to members of the WIA a QSL Bureau service". We had given effect to that promise, largely by simply supporting what already existed in the different states and territories.

A number of the QSL Managers offered non-members the opportunity to lodge stamped addressed envelopes or funds, to enable the Manager to send their cards on to them.

There are two conflicting considerations that can be identified in the case of inwards cards.

One is that there is a strong argument that QSL cards sent in good faith by a member of an overseas I^U society for an amateur in our country should not be simply thrown out because that person is not a member of the WIA.

The other is that if the QSL managers are holding money on behalf of non-members they are doing so as the WIA's appointed QSL managers and so the WIA should ensure that the money they hold is properly accounted for and subject to proper audit.

What do other societies do?

The Radio Society of Great Britain (RSGB) says that you can only send items via the RSGB QSL bureau if you are an RSGB member. The ARRL (USA) does the same.

Both societies allow non-members to collect inwards cards, in the case of the RSGB if a suitable pre-paid envelope has been provided to the QSL sub-manager. The RSGB even requires payment from non-members for a list of QSL sub-managers, something that is free for members on the 'members only' part of the RSGB website.

Some national societies only handle inwards cards for their members, and advertise that fact extensively. These include the national amateur societies for Denmark, France, Germany, Hungary, Japan, Monaco, Norway, Poland, Portugal, Russia, South Africa, Sweden and Zambia.

What about awards?

The WIA has offered all its awards to everyone, though with a cost differential. For example, the WIA General Awards program provides one certificate free to all WIA members, and charges Australian non-members \$12 for each certificate, and charges overseas applicants \$US12 for each certificate.

What do other societies do?

The ARRL DX Century Club Award is one of the most prestigious awards in the world, and on its website the ARRL say this "The DX Century Club Award, ... is available to amateur radio operators throughout the world ... ARRL membership is required for DXCC applicants in the US, its possessions, and Puerto Rico. ARRL membership is not required for foreign applicants."

And, of course, the IARU WAC (Worked All Continents) award is available only to members of their national IARU member society.

Many societies require local membership for at least some of their awards.

Many people telephone the WIA office seeking information - where is the nearest club, who do I contact if I

want to qualify as an amateur, can the police charge me with operating my station mobile away from my station address, what has happened to my AR, and so on.

Some are obviously from members, some may be and some are not likely to be.

We do (and I think should) treat all telephone enquiries with the same courtesy and offer the same assistance, though we expect the WIA office staff to do their best to encourage people who are not members to become members.

What was the response when I asked the question at GippsTech?

The issue attracted immediate discussion, and many people expressed their view to me in private. They were WIA members and non-members.

Let me summarise what I think is a reasonable summation of the views that were expressed.

No one disagreed with the proposition that there should be some things that are exclusively for WIA members, though identifying what those things should be was not so easy. Ideas such as a members-only part of the website, and software described in the magazine available only to members were among the suggestions offered.

A message from a number, expressed different ways, was the advice to "walk carefully".

"Walk carefully" because a number of amateurs lived in the past, and saw the WIA as unreasonable and dictatorial, and whatever we did would encourage further criticism from these people. "Walk carefully" because a number of amateurs would resent the withdrawal of any privilege, even though they were not prepared to contribute to sustaining the advocacy role of the WIA, and again whatever we did would encourage further criticism from these people.

Despite those warnings, I believe that the WIA is now at the point where it must examine what it does provide for non-members and ensure that membership is meaningful.

Amateur Licence Fee Increased

ACMA increased the amateur licence fee from \$58 per year to \$61 per year, an increase of \$3 per year, with effect from 1 July.

In January this year the WIA lodged a submission with ACMA in response to ACMA's review of its cost recovery arrangements, announced just before Christmas, and following a meeting between ACMA and WIA President Michael Owen VK3KJ and Peter Young VK3MV, now a WIA director.

The cost of amending an existing licence has not changed.

It is understood that where the old fee has already been sent to ACMA it will be accepted, and the next renewal date will be brought forward to a slightly earlier date to reflect the slight underpayment.

The WIA exam service forms on the website, both as incorporated in the Assessor Instructions Revision 5 and the downloadable forms have been updated.

ACMA Delays in Processing Amateur Licences

The WIA office has received a number of phone calls from WIA Exam Service assessment candidates concerned about the delay in the processing of their applications for certificates of proficiency and apparatus licences by ACMA after the WIA has forwarded them to ACMA.

The WIA has been advised by Alan Jordan of ACMA that as a result of the need to train new staff, and some new responsibilities given to those staff, the turnaround time for issuing amateur licences has been extended.

However, it is ACMA's aim to achieve a two-week turnaround time for issuing amateur licences.

While the WIA will continue to aim to forward the applications and certificates within 5 working days after their receipt from the Assessors, Assessors and candidates should be aware of the longer time before the new licence is issued; currently as much as four weeks after the documents have been processed by the WIA.

2007 Club Grant Scheme Closes

The WIA has allocated \$5,000 this year for grants to affiliated clubs, to support projects that promote and advance amateur radio, the WIA and its Affiliated Clubs by supporting useful and/or innovative projects undertaken or to be undertaken by Affiliated Clubs.

The closing date for applications by clubs was Monday 16 July 2007, and this year 8 separate submissions were received from 7 different affiliated clubs.

WIA meets with ACMA

On 25 June 2007 WIA President Michael Owen VK3KJ and WIA Director Peter Young VK3MV met with Mark Loney, Executive Manager Pricing and Policy, Alan Jordan and John Kington at the ACMA Central Office in Canberra.

The meeting was initiated at the request of the WIA for a briefing on the delays in dealing with a number of matters, particularly arising out of the Amateur Service Review Outcomes Paper. The ACMA acknowledged the delays and sought to work with the WIA in addressing its concerns.

Of particular concern to the WIA was the delay in the making of the further amending Determination to give effect to the balance of the matters identified in the Outcomes paper, now a delay of 3 years. The WIA also raised the delay in finalising the arrangements with CEPT to allow Australian amateurs travelling overseas the privilege of operating in other countries without the need to obtain an individual authorisation in those countries, and the delay in the issue of a Class Licence to enable amateurs visiting Australia to operate here without the need for an individual licence.

Another concern was the delay in the finalisation of the issue or re-issue of 2 letter call signs.

The WIA is also concerned at the continuing uncertainty about the future of the management of the amateur examination and the related certificate issue, as well as the call sign management function.

The WIA pointed out that the delay in the LCD meant that uncertainty prevailed over the power permitted to be used by

Foundation licensees, the privileges of Foundation licensees and also that the WIA's publication "The Foundation Licence Manual" was running short and it could not be reprinted until the regulations were up-dated.

While the WIA accepted that the current delay in the LCD was beyond the direct control of ACMA, Mr Loney offered to do all he could to achieve a speedy finalisation of that, and that other immediate solutions would be investigated to address a number of the other problems faced by the WIA and its members. Mr Loney indicated that more resources would commence the following week to address these outstanding issues with the view to finalisation as soon as possible.

In particular, work on the visiting/visitor licence issues has commenced and will be completed as soon as the enabling legislation is drafted.

ACMA advised that a statement on the allocation process for the issue of two-letter call signs would be made shortly, and the announcement may be made within a statement addressing the broader issues surrounding call sign management.

The WIA representatives felt that the meeting was positive and conducted in a constructive manner with a commitment to explore a range of options to meet the concerns expressed by the WIA on behalf of its members.

Hams Across Australia

Jeff Johnson VK4XJ is walking across Australia raising monies and awareness of the Deaf/Blind. With other amounts promised, Jeff's DeafBlind walk is half way and now half way to the target of \$10,000 towards a small bus with wheelchair access.

Rex Newsome VK4LR has offered to match donations to Jeff's Walk, and to match donations to date has already deposited \$2,000.

WIA President and Director visit Westlakes

Westlakes Amateur Radio Club at Teralba, near Newcastle was the host to WIA President Michael Owen VK3KJ

continued on page 25

A home brewed rotator

Warren Fritz VK4FJ
vk4fj@yahoo.com.au

I had been going back and forth to my Yagi mast for so long that I had nearly worn a track right through the floor. Finally I decided that enough is enough and I needed a rotator. However the answer to two questions eluded me, 'how and with what'?

Then a work-mate said to me one day, 'I know where there is something you might be able to use'. I said 'OK', and thus obtained a 30:1 reduction gearbox, heavy as heck, that I put in the shed.

As happens a lot of times, it just lay there. Then one day, while partaking of a certain refreshment known as rum and cola, an idea came to mind.

This gearbox might be set up to make my Yagi mechanically rotatable!

Like a lot of people, I tend to collect bits and pieces that might at first seem useless. So, after a little more thinking, and looking through my shed, a rotator began to take shape.

The first item required was a base to sit the gearbox on, which I constructed from a worn-out grader blade, cut into four pieces and then concreted into the ground. To that was added a couple of pieces of scrap angle iron and box steel to provide a frame for the gearbox to sit on. So there you have it, one gearbox mount.

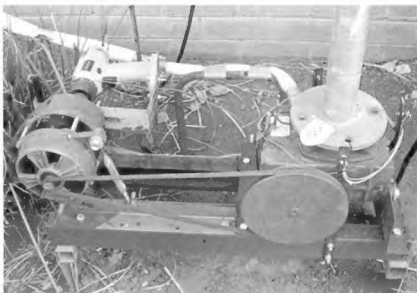
There it sat again for quite some time. Then one day, two twelve-volt cordless drills were obtained. The next challenge: how to mount the drills so that they would drive the gearbox!

One of the drills was partly modified, with the battery being removed and hard-wired to a twelve-volt truck battery for power.

It was mounted on a bracket with the chuck attached to the axle of a washing machine motor, which was mounted so that a belt could be fitted between the pulley on the motor and one on the gearbox. The washing machine motor, which does not work, was modified to fit onto the base frame.

The next step was to modify the second drill. It was wired up so that its directional switch (that is, forward/reverse) controlled the polarity of the battery power to the drill connected to the washing machine motor, and thus its rotation direction.

Overall, by using the switch on the



The home brew rotator

drill at my operating station, I could control the gearbox rotation and the direction of the Yagi. For protection from the weather, a gas BBQ lid was fitted over the gearbox and the drill.

Next and finally, all I needed was a direction indicator. I decided to use 5 micro-switches placed around the base of the mast in such a way that a small piece of metal would momentarily press the switch as it rotated past. Three of these switches light one of three bulbs which I set up at my desk to show North, East and West. The other two switches/bulbs tell me when the antenna is facing South or has come to its stopping point from either direction.

The photo shows the final product with its weather cover removed. The gearbox sits under the Yagi mast at the right. At the left can be seen the washing machine motor with the drill behind it, mounted on a bracket. The micro-switches sit on brackets around the base of the mast, and are operated by the tapered lug fixed to the rotating pipe flange.

So after about six months and a few refreshments and a lot of trial and error, I can now sit at my station and track signals without going outside and turning the mast by hand.

It might take a bit of work and time, but to build something like this out of scraps and bits and pieces, and have it work, gives you quite a bit of pleasure and enjoyment.

Normally, when people see my rotator, they scratch their heads and look at it in amazement. They can't believe what a mix and match of parts my rotator is made up from, or that it actually works. However, it does, and I would like to hear from anybody else who has home brewed gear like this, or if anyone would like to ask a question regarding this project I can be contacted on 0438 671 688.

By the way, the antenna on the mast is a six element Yagi for 27 MHz, which is also home brewed, but that's another story.

ar

Where has amateur radio headed now?

Jim McNabb VK3AMN
vk3amn@via.org.au

My father (Sandy) was a ham radio operator (VK3AMN) from April 1947 until sadly becoming a silent key in 2004. We had many happy hours working on aerials, radios and the like, and meeting many ham radio friends from all around the world. In 1974, I started to try for my licence but with a young wife, kids and work, and with little or no time to study I found it very hard and had to put any thought of getting my licence on hold.

Up until my father became a silent key, we were working together on SSB; and with the PC generating PSK31, he was still learning new ways to use the radio. I started to miss the time spent on the radio from that time.

Has the "F" licence worked?

I was lucky that many friends that dad had made in ham radio told me about the introduction of the "Foundation Licence" and encouraged me to sit for it. I went to the EMDRC ("Eastern Mountain District Radio Club Inc") rooms on Saturday 9 March 2006, where I was made to feel very welcome, and sat for my first exam for some 45+ years on Sunday 10 March 2006. I passed the Foundation Licence exam and was given my first call, VK3FAAJ.

I soon left on a three month trip to the Kimberley in VK6 land. I took an Icom IC-706MKIIG with a 40 m home made dipole, a 1/4 wave 40 m whip, a long wire, a portable tuner and a 2 m and 70 cm whip on the front of the four wheel drive.

I contacted the Travellers Net on 21.185 MHz, and the Coral Coast group on 7.060 MHz, any day that I could. I got my first DX, a 'JA', on 40 m with my 10 watts whilst travelling along the Tanami Road in VK8 land. This was great, as I had to get a dipole or my long wire up and running each day and also remember that "height is might". Many thanks are due to Gordon VK4BQ for his time each day that I got through to the Coral Coast group, and the many other hams that would talk to me on my trip, all of which was great for my confidence.

I had a lot of fun in getting the dipole up as high as I could and, needing to remember where the station is you are

trying to contact, locate the dipole side on to them. Note that trees never grow where you want them (the first of many lessons in mobile ham radio). My second lesson was to put an earth wire on the tuner and radio - lucky it was only 10 watts.

With the trip under my belt and back home, I found that using the radio was a great way to meet some great hams on the air, and at the club meetings. With increasing confidence gained from working ham's on air, and a bit more study, I passed the Standard Licence and became VK3LWX on 8 November 2006; then, still working at my own pace, studied for the Advanced licence exam. "I will get it when I get it" was the way I went about it. I passed the Advanced exam on 16 December 2006 and acquired my new call, VK3AMN. I was lucky that Sandy's call sign was still available - as well, it was easier than changing the call signs on all of Dad's old books and home made gear. The only thing that I am sorry about is Dad will never get to talk to me on the air.

Some advice!

You should only upgrade "if and when you want to".

Only sit for the licence exam when you are ready and not when others tell you.

- It's only a hobby and not the end of the world if you don't pass. There's no hurry.
- Once you get your "F call" you're on the air, and learning the very best way, with hands-on experience.
- I would not be on the air without the "Foundation licence". I would like to thank the WIA, the EMDRC and many hams who helped me along the way, with a special thanks to

Lionel VK3MN, Ross VK3MY and Keith VK3FT, and Ron Bertrand VK2DQ with the Gold Coast Radio Club for their help and time in getting me on the air. The many hours that these members put into the hobby will keep the hobby alive. There are many other members helping the new members in getting on the air, their time and help is freely given.

- Any one who thinks they would like to get a Foundation licence but think they can't, please think again. The "Foundation licence" was made for us, you don't have to do CW, you don't have a lot of theory for the Foundation licence, all you need is a bit of common sense and some basic knowledge on working the radio, and safety. With a little study and help from any of the many clubs and ham's you will be up and running in no time, remember if you don't ask you will never know. There are no silly questions, only silly people that don't ask. Everyone had to start somewhere.
- Without the changes to ham radio, I believe it may have died out in the next few years, with its ageing members and very small number of new members each year. But now with the changes, I think that ham radio has been reborn and will only grow. The last I have read is that there are 1000+ "F calls", and a large number of them upgrading.
- Great work WIA, and the many assessors and members that have helped make this happen. I hope to meet you on the air soon.

ar

Operating a QRP station in a quiet age

Grant McDuling VK4JAZ

grantmcduling@action-international.com

It's all about simplicity, sunspots and ... silence. I have developed the ability to live in hope as I patiently await the return to normality as the sun slowly makes its way out of the low in its sunspot cycle.

But that's no reason for me to sit on my hands in my QRP shack, I reason, trying to think of the last CW QSO I had. For the last few years I have had to be content with FM and SSB QSO's, not that that's a bad thing. At least they are at the 5W limit and qualify as QRP contacts.

Every night, in between sending out my now obligatory CQ on one of my QRP rigs, I try not to let the silence of the frequency deafen me. Sure I hear signals on the 20 and 40 metre bands, but do they hear me? That's the question. If they do, they certainly don't answer, as they respond to the stronger signals. I turn on my trusty soldering iron in an attempt to avoid going nuts and commence work on yet another QRP rig. I sometimes wonder if I am a sucker for punishment.

My latest rig is a 0.75 W Ramsey transmitter and receiver combination that is tuned to the calling frequency of 14.060 MHz. The beauty of this little rig is that, unlike my others (Rockmite and Pixie 11) its VCXO design allows up to 8 to 10 kHz of tuning around the crystal frequency. This would surely be handy in helping me snare a contact, I reasoned when choosing to build the rig. It also features a clean keying waveform and a built in T-R switch.

The receiver too is highly sensitive and comes with a matching enclosure, so the pair look good. It easily receives SSB, CW, RTTY and AM signals and with its varactor tuning, smoothly receives around 250 kHz of the 20 metre band. In fact, I can also listen to the 22 metre broadcast band, which is handy given the lack of QSO's I've had of late.

Anyway, the instructions for both kits were excellent, and the circuit boards are so well constructed and uncluttered that the avid homebrewer like myself can have a field day (no pun intended) messing around, experimenting and adding modifications until the sun makes up its mind to return to normality.

I knocked together a small 8 Ohm



Photo 1. The VK4JAZ QRP station.



Photo 2. Building the Ramsay 20 metre transmitter.

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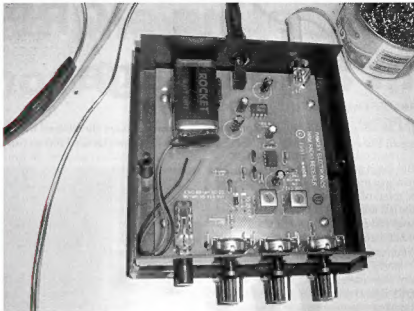


Photo 3. The Ramsay HR20C 20 metre receiver.

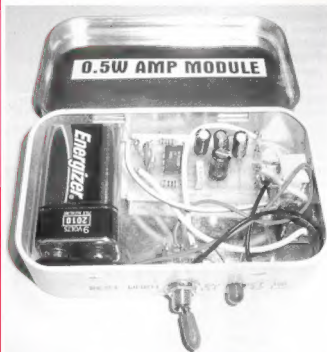


Photo 4. The 0.5 W amplifier mounted in an Altoids tin.

loudspeaker and hooked it up to the receiver, but was disappointed at the volume. This called for some more building, so I shot off to the local Dick Smith outlet and bought a neat little 0.5W audio amplifier kit that they call The Champ (kit no. K5604). This cost me the princely sum of around \$5. I

Radio and even Radio Australia on my Ramsey Direct Conversion Receiver. And who knows, one day someone may respond to my call and I'll be able to post out a real QSL card. I still have to make use of the WIA bureau!

ar

Silent keys

Brian A. Stevens VK5FV (Major Ret.)

Brian Stevens passed away suddenly at home in Rostrevor in the early hours of Wednesday 4 April, 2007.

He was born at Broken Hill on 29 May 1931 but spent all of his early life at Renmark, on the Murray. Although his thirty year military career and life's journey took him to many places, his deep love of the river and the boyhood pursuits it provided, remained with him for all of his life.

During his early army life, he served in Korea and as a member of the occupation forces stationed at Kure in Japan. It was here that he met and married his wife Harumi. In Viet Nam as a Signals Officer, he performed a vital role in communications with the Australian Contingent.

Later in his career Brian extended his considerable expertise in communications into the field of amateur radio. This thereafter became a special part of his life. Whilst stationed in PNG his callsign P29FV became a much sought after contact by many throughout the world.

His attainment of the coveted DXCC was a very proud moment. In later years as VK5FV, he was eagerly seeking only a few call letters to complete his second DXCC. The much awaited improvement in ionospheric propagation made his ambition appear 'so close but oh so far'.

He was a very active member of the Rostrevor Lions Club. All members of this club as well as many others throughout the community sought and readily received the benefits of his expertise in many areas. One call to Brian, and he would be there in a flash to help anyone with computer concerns.

Brian was a very proud family man. He often spoke of the considerable achievements of his three children. He also held great affection for their respective partners and particularly for his five grand-children.

'It took little time for me to discover, Brian was less like a friend but more like a brother'.

Bernie Watson VK3ABM

Frederick James (Jim) Archer Wright VK3CFB

It is with regret I announce the passing of Frederick James (Jim) Archer Wright VK3CFB.

Jim was a Life Member of BARG, which indicates how highly respected he was within the club.

Jim and his new wife Vera (dec.) came to Australia after the end of World War 2 on a motor bike and sidecar, travelling across Europe and Asia and using ships only when absolutely necessary.

He did write his life history and put it in book form and on CD.

Jim had been suffering ill health for a number of years but managed to keep up with new and old friends on 'Echolink'.

As was Jim's, and the family's wish, a private funeral was held.

Submitted by Bob Pitcher VK3NBV,
President BARG.

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The 'Spectrum Snooper'

Dale Hughes VK1DSH

The radio frequency spectrum can be viewed in two ways; in the time domain or in the frequency domain. Probably the most useful instrument for viewing a signal in the time domain is the oscilloscope, it plots amplitude vs. time. In the frequency domain, the spectrum analyser plots amplitude vs. frequency. Each of the viewpoints can give us information about the signal, its structure and the environment in which it travels. Both instruments are complex and often contain a mixture of analogue and digital circuitry. Conventional oscilloscopes are common and easy to use; and few people would bother to build one. Spectrum analysers are much less common and are still expensive, and some designs are available for home constructors¹. As in all fields of electronics, the PC is changing the way we do things. PC based Instrumentation is flexible and offers convenience undreamt of a few years ago, along with decreasing cost of ownership.

This article presents a design for a spectrum analyser that is useful over the HF spectrum. It uses a PC to control the analyser hardware and to display the spectral information. Using a PC eliminates much of the circuitry that is needed to scan a range of frequencies and display the results on an oscilloscope or other X-Y display.

The design presented here uses fairly conventional RF circuitry for signal acquisition and a PC interface for display and analysis. A major departure from other designs is the use of a Direct Digital Synthesiser for the local oscillator. Using a DDS simplifies the issues of frequency accuracy and repeatability, as the DDS is as stable as its crystal clock oscillator. DDS systems are also easily controlled using a microcontroller, something not true of free-running VCO systems. This design uses a single frequency conversion so that spurious responses are minimised. The specifications of this

instrument are as follows:

- 0.1 MHz to 30 MHz frequency range.
- Wide dynamic range.
- 4 stage input attenuator (0, 10, 20 & 30 dB steps).
- Resolution bandwidth of ~10 kHz.
- 45 MHz Intermediate frequency with crystal filter.
- Optically isolated RS232 interface to host PC.
- Adjustable frequency span and step size.
- Logging facility for acquiring spectra over time periods of seconds to days.
- Can be used as a selective level meter.

An example of the usefulness of such an instrument is shown in the following 3D plot of band occupancy vs. time, where time, frequency and

signal levels are shown on the three axes. The day-night cycle of ionospheric propagation can be clearly seen, as well as stations starting and ending transmission. Interestingly, interference can be seen to wander through the band. In this example, 5 scans were averaged each 5 minute interval over two complete days, and the results plotted. The frequency increment was 1 kHz, and the analyser was connected to an aerial wire approximately 5 m in length strung up to a tree.

Circuit description

A spectrum analyser is basically a receiver, except that the signals are displayed for analysis rather than listened to. Figure 2 shows a conventional superhet line-up of functional sections in the analogue module. As the intermediate frequency is 45 MHz and the frequencies of interest are between 0.1 MHz and 30 MHz, up conversion is used. For this to occur, the local oscillator tunes between 44.9 MHz and 15 MHz.

As can be seen from figure 2, the circuitry is divided into two sections. The analogue module contains the RF and detection circuitry, and the digital module contains the (noisy) digital and microcontroller circuitry. It is ESSENTIAL that the two modules are exceptionally well screened and decoupled from each other. If this is not done, the instrument will show many spurious responses from locally generated noise, significantly diminishing the usefulness of the instrument.

The RF input signal first passes through a step attenuator which has four settings: 0, 10, 20 and 30 db. This allows strong signals to be attenuated so that the front-end of the analyser is not

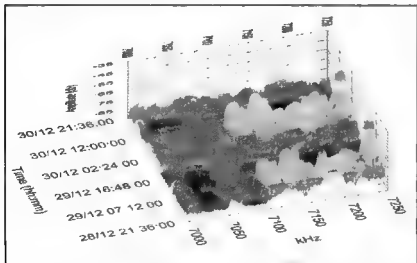


Figure1 3D representation of spectrum occupancy for a section of the HF band.

ANALOG MODULE

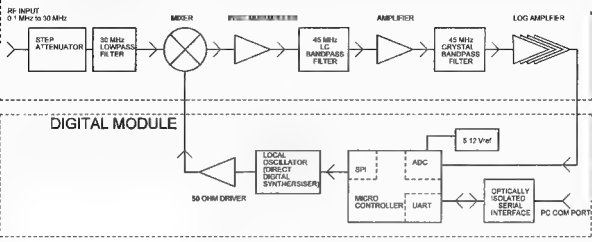


Figure 2: Block diagram of instrument.

overloaded. The attenuator is housed in a separate screened box that sits on top of the analogue module, and it is connected to the mixer via a double screened coaxial cable. The attenuator resistors are 1206 sized surface mount devices. To obtain the required attenuation a parallel combination of resistors is used, the values are shown on the schematic diagram. The attenuator sections are switched by small relays which are isolated by optocouplers, and the control lines are passed through feed-through capacitors to minimise noise pickup.

A seven-pole low-pass filter is used to eliminate frequencies above 30 MHz, so that the image response and strong VHF signals do not interfere with operation of the instrument. The low-pass filter design is taken from a table of designs in the ARRL Handbook². The inductors are wound on small toroid cores and silver-mica capacitors were used to minimise temperature drift of the filter characteristics. The filter has a 35.4 MHz cut-off frequency and its response is greater than 20 dB down at 45 MHz. A scan with a wide-band noise source confirmed these figures.

Following the input filter, a SBL-1 double balanced mixer produces an output at the intermediate frequency which is then amplified by a post-mixer amplifier (U3). This function is provided by a MAR-4 amplifier which provides gain in addition to a well defined termination impedance for the SBL-1 mixer. Selection of the wanted 45 MHz

signal is achieved by a band-pass filter consisting of a pair of tuned circuits that are link coupled.

Following the mixer and band-pass filter is an AD603 variable gain amplifier (U5), a 45 MHz 4-pole crystal filter and an AD8307 logarithmic amplifier (U6). This part of the circuit is adapted from the application information provided for the AD8307 amplifier³. Potentiometer VR1 allows the gain of the AD603 to be trimmed if accurate calibration of the analyser is required.

The crystal filter requires a source and load impedance of 350 ohms in parallel with 6.5 pF, and an 18 pF coupling capacitor. Resistors and variable capacitors achieve this requirement. The filter is a Toyocom brand, type 45E2FF, 4-pole filter with a nominal bandwidth of ± 3.75 kHz at 3 dB and ± 12.5 kHz at 30 dB and it sets the resolution bandwidth of the analyser. Note that the filter comes as a pair of matched 2-pole units that are cascaded. Each unit is the size of a standard crystal except that each can have three connections.

The output from the log amplifier is a voltage which corresponds to the logarithm of the input voltage and the calibration factor is 10 mVdB⁴. This voltage is sent to the microcontroller for analogue to digital conversion.

In the digital module, the microcontroller (U10) controls the DDS chip, converts analogue voltages to binary numbers and talks to the host PC through an optically isolated serial

interface. So that the binary number which corresponds to the output voltage of the logarithmic amp is accurate, a temperature stable voltage reference is provided (U11). Potentiometer VR2 allows the reference voltage to be set to exactly 5.120 V DC and this is used as the reference voltage for the 10 bit analog-to-digital converter inside the microcontroller.

The Direct Digital Synthesiser (U8) generates the local oscillator signal for the mixer. A 30 MHz crystal oscillator (U7) provides the clock source for the DDS chip which multiplies it to 180 MHz. This gives the DDS chip an upper useful output limit of about 70 MHz. To ensure that the DDS output is pure, the signal passes through an elaborate elliptic low-pass filter⁵ and is then buffered by U9 so that the signal can drive the 50 ohm input of the balanced mixer.

To minimise the possibility of radio frequency interference from the attached PC, the serial connection between the digital module and the PC is galvanically isolated. This means that there is no physical metallic connection between the circuits; instead opto-couplers (U14 and U15) are used to transmit the serial signals. Power for the PC side of the interface is extracted from the handshaking signals: 'Data Terminal Ready' and 'Request To Send'. A 7660 voltage inverter (U12) generates the negative supply for the interface, and an operational amplifier (U16) acts as a comparator to 'square up' the serial

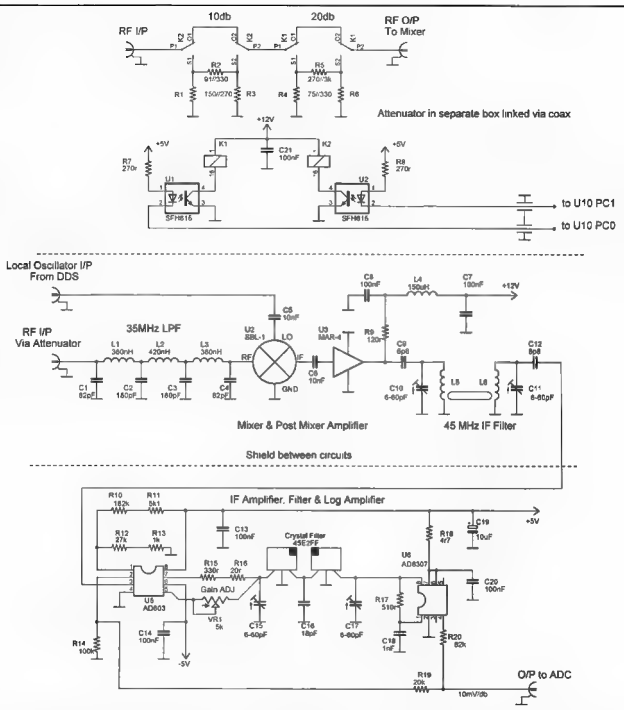


Figure 3: The analogue circuitry.

signal for transmission to the host PC. For the isolation to be effective, the 'Signal Ground' from the PC must not be connected to the common of the spectrum analyser. Commands from, and data to the PC are transferred at 38.4 kbaud.

Construction

The instrument is housed in a metal case, inside of which are three smaller, RF tight boxes for the analogue and digital modules. All RF cables are double screened, and all other circuits are passed through feed-through capacitors. Most of the analogue circuitry is mounted on a

number of small, double sided, printed circuit boards, except the crystal filter which was built using 'dead bug' style construction. Internal partitions inside the analogue module separate the input stage from the IF and signal processing stages.

Digital circuitry inside the digital

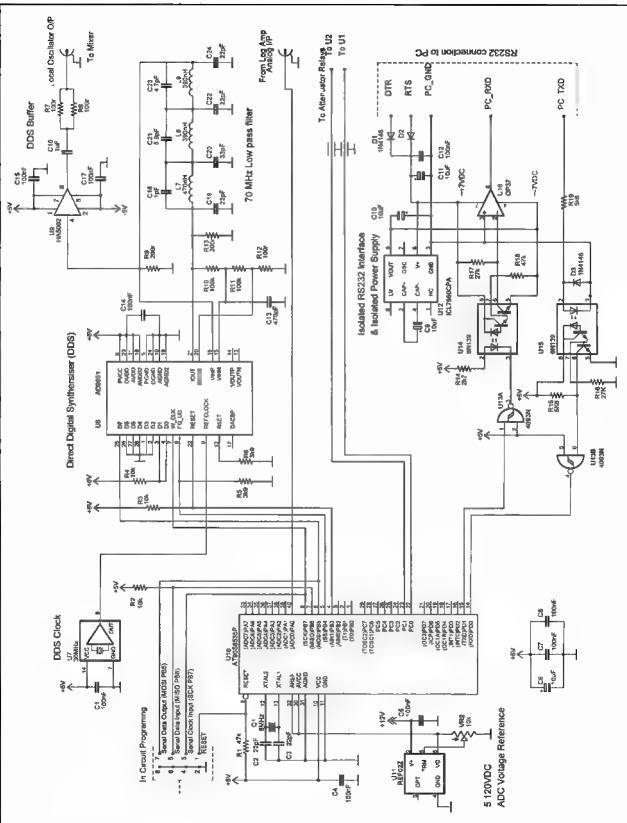




Figure 5: Internal view of the analogue & digital modules. From left to right: IF, crystal filter and log amp. RF low-pass filter, mixer and first IF amplifier. (± 5 V regulators above). DDS and Microcontroller board, with buffer at top middle. Isolated serial interface on lid of RHS box. The step attenuator sits on top of the analogue module in a separate small enclosure.

module is mounted on a number of printed circuit boards. Power and signal lines are filtered and decoupled to reduce the possibility of radiated interference. Provided adequate screening, filtering and decoupling is applied, there are no other special construction requirements.

A number of adjustments are required before the unit can be used:

1. Adjust VR2 on the microcontroller board so that the voltage on pin 32 of U10 is 5.120 V DC.
2. Connect the analyser to a stable and clean RF source at, say, 10.0 MHz and set the analyser to repeatedly scan across the frequency. Adjust C10 & C11 on the mixer board for maximum response.
3. Adjust C15 & C17 on the crystal filter to obtain the maximum response with the most symmetrical and narrowest display.
4. If required, adjust the IF gain control, VR1, to set the trace to the correct amplitude level.

Following these adjustments, connect a 50 ohm terminator to the input and scan the range 0.1 MHz to 30 MHz. No significant spurious responses should be evident. (See comments in the Performance section.)

Components

Some of the components are quite specialised e.g. the Analog Devices chips. These were purchased directly from Analog Devices via their web site (www.analog.com) and internet purchasing facility. Mini-kits (www.minikits.com.au) are a local supplier of the AD9851, AD8307 and MAR-4 devices. The crystal filters are manufactured by Toyocom and were purchased from Rockby Electronics (www.rockby.com.au), the stock number is 12232. The DDS circuitry uses all surface mount components and requires considerable care in assembly. The surface mount components and the H A - 5002 (U9) were purchased from Farnell (www.farnell.com). The SBL-1 mixer was on-hand and could be replaced with a TUF-1 from Mini-kits. The Atmel microcontroller (U10) was also on-hand and is now difficult to source,

however it can be replaced with the pin-compatible ATmega8535 with minor changes to the system firmware. Amidon T50-6 toroid cores are available from RJ & US Imports (<http://users.catchnet.com.au/~rjandusimports/index.html>) along with other stockists.

Some of the inductors for the instrument are hand wound; the axial and SMD units need to be purchased, Table 1 provides the inductor information. The capacitors used in the 70 MHz filter on the output of the DDS are special microwave ceramic types; their details are given in Table 2.

An external power supply was used to provide ± 12 V DC and ± 5 V DC for the various parts of the instrument. A transformer/rectifier and three terminal regulators were used and current consumption is quite low. No schematic for the power supply is provided as the design of a suitable power supply is straight forward. None of the other components should be difficult to locate, and substitution of other suitable or available parts should cause no major problems.

Software

There are two software components for the instrument:

1. firmware that controls the microcontroller,
2. application software that runs on the host PC.

The firmware is written in assembler and simply accepts and interprets commands from the PC, controls the local hardware e.g. the DDS, attenuator, analogue to digital converter etc, and sends data back to the PC. This section will not be discussed further, and the source code is available to anyone who

Table 1: Inductor details:

Inductor	Value	Core/Type	Turns	Supplier/Part Number
L1	360 nH	T50-6 (yellow)	9	n/a
L2	420 nH	T50-6 (yellow)	10	n/a
L3	360 nH	T50-6 (yellow)	9	n/a
L4	150 μ H	Axial	-	Jaycar/LF-1536
L5	420 nH	T50-6 (yellow)	10/2*	n/a
L6	420 nH	T50-6 (yellow)	10/2*	n/a
L7	470 nH	0805 SMD	-	Farnell/400-0547
L8	390 nH	0805 SMD	-	Farnell/400-0535
L9	390 nH	0805 SMD	-	Farnell/400-0535

2 turns for the coupling winding.

Table 2: 70 MHz filter capacitor details:

Capacitor	Value/Value	Supplier/Part Number
C18	0805/1 pF	Farnell/756-8398
C23	0805/4.7 pF	Farnell/756-8479
C21	0805/5.6 pF	Farnell/756-8487
C19, C22, C24	0805/22 pF	Farnell/756-8568
C20	0805/33 pF	Farnell/756-8592

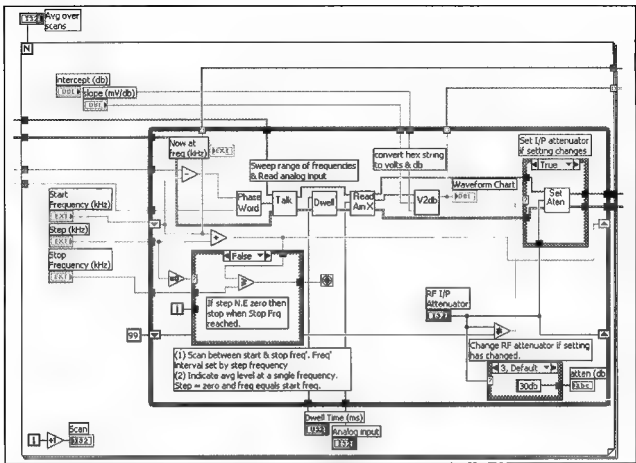


Figure 6: A section of the LabVIEW code used in the analyser.

is interested. On the other hand, the application software that runs on the PC does most of the hard work.

The application software is written in LabVIEW™, which is a graphical programming language ideally suited to this sort of control and data acquisition application. In many respects the software looks similar to a schematic diagram with various components connected by wires, figure 6 shows a section of the code. The source code is available to anyone who would like a copy; however this will require using the LabVIEW™ development software. Otherwise an executable version can be provided.

The section shown in figure 6 is a 'for' loop and it executes 'N' number of times (In this case the number of scans over which to average); it controls the scanning of the DDS frequency, reading back the logarithm of the input voltage and the step attenuator setting. Data, into and out of the 'for' loop is by means of 'tunnels' on the sides

of the loop. The various small icons with labels above them are front panel controls or indicators. The larger boxes 'Phase Word' etc are 'subVI's' which are equivalent to subroutines in conventional programming languages; they use the same graphical programming style. The LabVIEW language has all of the usual programming constructs, but presents them in a graphical way. It also allows sections of the code to operate in parallel and if strict sequencing is required, it has to be explicitly programmed.

The instrument front panel (Figure 7) allows the user to setup the spectrum analyser hardware and the PC application software. The front panel is a 'virtual instrument' and behaves like an actual instrument would, except that a PC is used instead. The advantage of this is that the PC can do all the 'hard' work including numerical analysis, graphical display and file manipulation. For this instrument the front panel appears as an X-Y display along with controls and indicators. A number of 'tabs' hide

controls or functions that do not need to be changed often.

One of the great advantages of this style of instrument is the ability to acquire, store, process and display data so that analysis and interpretation can be done at a later date.

Performance

Considering the relative simplicity of the circuitry, the analyser performs very well and it is a useful instrument. Such a device has many uses in the shack; from examining and aligning filters, tracking down interference or monitoring a particular band, to checking the output of transmitters. Checks of the instrument response have shown that the amplitude response is flat within a few dB over the whole frequency range. Also, there appears to be only two spurious signals; the first is at 22.5 MHz which is exactly half the IF frequency, the second is at 30 MHz which is the frequency of the DDS clock. Both of these spurs are very narrow and do not interfere with use of

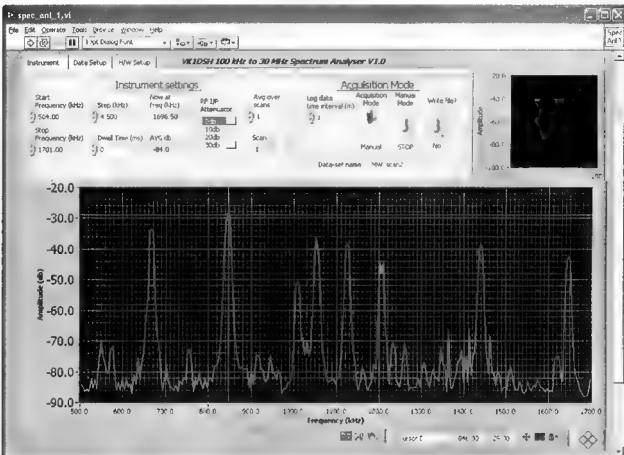


Figure 7: Front panel of the spectrum analyser showing a scan of the MW broadcast band. In this case, the frequency limits were 504 kHz and 1701 kHz, with a frequency step of 4.5 kHz. The user can change the frequency range, frequency step, scan time, RF attenuator and averaging settings. If required, the data can be written to a file for later analysis. The indicator at the top right shows the data as it comes in, while the main X-Y display shows the averaged result in greater detail. Some of the indicators and controls can be matched to the icons in Figure 6.

the instrument. Part of the reason that the spurs are few is that a single conversion approach has been taken. Multiple conversions to improve bandwidth and display resolution inevitably result in more spurious signals. Also, to reinforce the message; great effort must be put into screening, shielding and decoupling all the sections of the instrument if reasonable performance is to be achieved.

If required, the analyser can be set to a single frequency and continuously measure the amplitude of that frequency. This is useful for peaking single frequency amplifiers or oscillators. In this case, the 'start' and 'stop' frequencies should be set to the same value, and the 'AVG dB' indicator will show the signal amplitude.

The signal to noise ratio of the displayed spectrum can be increased

by averaging 'N' number of scans. The signal increases by 'N' times, while the noise increases by \sqrt{N} times, which is always smaller than 'N'; so averaging over 10 scans will improve the displayed signal to noise ratio by a factor of approximately three.

The main limitation of the instrument is the 30 MHz upper frequency limit; the specifications of the existing instrument were dictated by the availability of some of the critical components, notably the crystal filter. If suitable crystal filters were available for, say, 70 MHz, the upper limit of the instrument could be increased to 50 or 60 MHz. Faster Direct Digital Synthesizers and higher intermediate frequencies could extend the frequency range even further. Otherwise converters could be used to cover 30 MHz sections of higher frequency bands.

Conclusion

A basic spectrum analyser has been presented. It uses readily available components and offers reasonable performance and flexible operation for the radio experimenter. Source code and printed circuit board layouts are available for those who would like to experiment with this type of instrument.

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International Lighthouse Weekend

18-19 August, 2007

Glenn Alford VK3CAM.

No contest here, just a real winner for a great weekend, to go away and get involved in working some rare DX. This is one event I can recommend!

A year goes quickly. Last year, Carl VK3EMF, Joe VK3BKI and myself VK3CAM activated Cape Schanck Lighthouse for the second year in a row. Previous years have included McCrae Lighthouse, Maritime Museum Southbank, Currie Lighthouse and Cape Wickham, King Island.

Cape Schanck, 2005 and 2006. This location offers a good selection of accommodation on the grounds, within sight of the lighthouse. Plenty of space for antennas and long wires, with a few useful trees. The facility is also for the hobby. The nice part about this location is the easy access from Melbourne. You can also drive right up to your accommodation.

Running two stations is easily achievable, with plenty of space for antennas. Fortunately no cross interference between the stations either. We used the trusty Cushcraft R5 vertical, a good traveller, and numerous wire dipoles. The rigs were an IC-775 and TS-50S, and plenty of contacts were enjoyed.

During the quieter periods you could enjoy a lighthouse tour, museum tour or coastal walks. Swimming is not recommended, and extreme care should be taken when rock walking along the coast,



The Cape Schanck Lighthouse



TVI High Pass Filter with Braid Breaker.



An inline TVI filter with Braid Breaker.

A large amount of TVI can travel down the outer braid of Coax as well as the centre conductor. The braid breaker isolates the centre conductor and braid from the TV/VCR/DVD. The High Pass filter cuts in at 50MHz. This filter has -80dBm attenuation at 40, 80 and 160 Metres.

Pager Notch Filter:

A receive filter that can be used in an outdoor housing (Pictured) to be mounted close to your antenna on the mast, or can be used in a diecast box for indoor use near your transceiver or receiver. The filter is set to 148.5 MHz but may be tuned by the user across the 148 to 149 MHz Pager band. A selection of connectors are available including BNC and N Type. Where transmit is required this filter can be switched out of circuit by the use of coaxial relays linked to the PTT switch.

Contact us if you need a special filter, we manufacture here in Australia rather than overseas.



www.vicnet.net.au/~jenlex
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due to unpredictable waves.

Some tips...Check and test all leads and equipment, before going. Be careful of tea tree and thorn bushes as they love long wire antennas. They seem to grab hold, and not let go. Take necessary tools, spares, tape, cable ties. Don't forget the camera.

This year, 2007, I have proposed to the team we return to King Island, to the Currie light. We will endeavour to make it a three or four day weekend on the island. Our call, VK3ILH/7, will be operating from the keepers' old workshop at the base of the lighthouse. We will be running at least two stations, and will be on the main HF bands, as conditions allow. There is a possibility we will also try two metres. Note that digital phones do not work on the island.

It's not a contest, and the rules are very simple, operate within sight of the lighthouse, and have fun. To register your lighthouse and check other lighthouse registrations go to <http://www.illw.net/>

You don't need to rough it – within Victoria there are about forty lighthouse locations. Most are controlled by Parks Victoria, and some are leased to private operators. A number offer accommodation in old keepers quarters on the site, which are ideal to operate from, have access to power, and are relatively comfortable.

So start planning and get involved. If you are interested in giving it a try, and you need assistance or suggestions, contact either Carl or myself.



The lantern room at Cape Scharck

Not fast food – an AR introduction to “microwaves”

Peter Freeman VK3KAI.

The “Microwave” is ubiquitous in the kitchen in Western society. The microwave oven provides fast food in the home, using RF energy from a magnetron at around 2,450 MHz at power levels of 600 W to beyond 1000 W. Fortunately for the cooks, the energy is radiated into a shielded enclosure and absorbed by the water molecules in the foodstuff inside. The result is that the food rapidly heats up as the water molecules become excited by the RF energy.

There are a relatively small number of licensed amateurs that are excited by microwave RF energy. Not those getting “heated up”, rather those who find microwaves intellectually stimulating. Why might this be so? What are the microwave bands and what do they offer? Are we the only users? This article intends to give an introduction to the amateur microwave bands. It will be followed by additional articles giving extra information, initially focussing on the bands that are now available for the first time to Standard Licence holders.

Many Standard Licence holders are keenly exploring their new privileges on HF, VHF and UHF (although many Advanced Licence holders are happy to continue their existing activities and

have not explored into the microwave spectrum – of course, that is their right). One of the attractions to amateur radio (for some) is the diversity of “the hobby”. We have many bands and modes of operation available. There are many aspects of the hobby that can give great satisfaction to the amateur interested in exploring those aspects that mentally stimulate.

So, why should we consider exploring the microwave bands? The reasons are many and varied, probably different for every amateur that takes the plunge to invest time and dollars in equipment to operate beyond the 70 cm band. Some of the reasons may lie in the band allocations for each band, as described in the LCD documents. Together, all of



A later configuration of the VK3KAI “Rover” machine for the Summer VHF/UHF Field Day Contest. This configuration is fully mobile, with omnidirectional horizontally polarised antennas for all bands 144 MHz to 10 GHz, plus a vertical whip on 6 m. The antennas are (L-R): 23 cm Alford slot, stacked pair of Big Wheels on 70 cm, slotted waveguide antennas for 2.4 GHz, 3.4 GHz, 5.7 GHz and 10 GHz, with the 2 m Big Wheel behind. 6 m vertical not visible. The vehicle certainly attracts attention when in transit between operating sites!

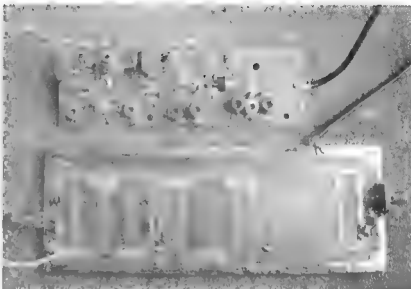
the HF bands (160 m through to 10 m) give the amateur access to approximately 3.3 MHz of spectrum. The VHF and UHF (6 and 2 m plus 70 cm) bands gives us another 38 MHz, if we are fortunate enough to be located outside areas which have restrictions placed on parts of the 6 m and 70 cm bands.

Yes, propagation is different once we move beyond the HF spectrum. But what is new – we all know that propagation changes even across the HF spectrum with the time of day and with the sunspot cycle. The 6 m band is considered by many to be a transition band – it shows many characteristics of the VHF bands, but also occasionally exhibits HF-like characteristics. Many amateurs are aware that even 2 m and 70 cm occasionally exhibit enhanced propagation beyond the classic descriptions of “line of sight” communications. Some of these characteristics are observed using the relatively wideband mode of FM. Many other propagation modes can be experienced if one explores the “weak signal” transmission modes, traditionally CW and SSB, and the newer digital modes, including the WSJT modes. But I am wandering off track – these are issues for a different set of articles!

The next amateur band, going higher in frequency and currently available in VK, is the 23 cm band. This band alone gives us access to 60 MHz of spectrum. The possibilities are greatly increased – it now becomes possible to transmit FM television signals within the band. The bands above 70 cm through to the 1.25 cm (24 GHz) band give the amateur access to around 1362 MHz of spectrum! Of course, we need to recognise that much of this spectrum access is on a secondary basis.

One of the services that we share with on some of these bands is ISM – industrial, scientific and medical. This service usually operates at low radiated power outside of the specific installation. ISM also includes several modes of data communications, such as Bluetooth, the 802.xx data modes and newer modes being developed and refined. There are restrictions placed on these data modes for use by members of the public. The modes are designed for communication over relatively short ranges using low ERP (effective radiated power) signals.

Amateurs are not confined to these restrictions if they are only



A homebrew prototype N1BWT transmit converter for 23 cm built by Ralph VK3WRE. Whilst some commercial equipment is available for 23 cm, the microwave bands present plenty of opportunities for home design and/or construction.

communicating between themselves – we can use higher antenna gains and transmit powers. So there is great scope for exploration of amateur-only data networking if we adapt existing and/or new techniques with our allowed higher power levels and greater antenna gain. Of course, we cannot directly connect to the public switched network using these higher effective radiated power

level systems as other regulations come into play.

Basically, the microwave spectrum gives us huge potential for exploration of newer techniques and for exploring what is really possible under different enhanced modes of propagation. The space is also there to explore new modes if one has the inclination.

Whilst the available spectrum space



The VK3KAI station used in the 2005 Summer VHF/UHF Field Day Contest. The station antennas can clearly be seen. From L to R: Ex-PayTV dish for 10 GHz, a vertical whip for 6 m and HF liaison, a Big Wheel for 144 MHz (front), a pair of Big Wheels on 70 cm (behind, with only the bottom of the pair visible) and an Alford slot antenna on 23 cm mounted in a plastic radome

may suit some, many microwave-active amateurs are simply using the typical narrowband modes that we see in use on the HF, VHF and UHF bands. Most find the attractions are the technical and operating challenges. Once we move above the 23 cm band, there is little commercially produced equipment on offer. Therefore, the first challenge is to source, design, construct and commission the equipment to be used. Once working, the equipment needs to be integrated into a functional system, including an appropriate antenna. Then there are the operating challenges, including finding other amateurs who share your interests and then establishing contacts using the equipment.

How does one source equipment for the microwave bands? The cheapest method is to construct the gear yourself from kits or to purchase assembled equipment. On some bands, commercially manufactured equipment is available, even if not commonly stocked in VK. Some hints will be given as we consider each band in turn. Many afflicted with the microwave bug gain great satisfaction in the construction and assembly of their

transverter/s, even if they are based on an easily obtained kit of components.

There are other considerations in assembling a system for a microwave band, including feedlines and antennae. The characteristics on each band will be different, as will be the results.

What is feasible using SSB? At 1296 MHz, a 10 W PEP output system with low loss feedline to a reasonable antenna can easily achieve reliable communication on paths greater than 100 km under normal conditions. With enhanced conditions, much greater distances are possible – look at the records in the Callbook. It is common for signal strengths on the microwave bands to be much stronger than on the 2 m band, commonly used for liaison between stations.

Different propagation modes become available on the microwave bands. Many amateurs, especially in Europe and North America where numbers are greater, are using rain and snow storm cells as scattering media to complete contacts well in excess of "line of sight" paths, out to several hundred kilometres. Modest transmit power levels, and the high antenna gains possible due to the use of parabolic reflectors, give high effective radiated power and enable the use of tropospheric scatter to establish contacts.

Part of the challenge includes the sourcing of test equipment (or at least access to the test gear) to aid in alignment and commissioning of the equipment. Of course, we should be building some basic test functionality into our equipment so that we can monitor transmit power.

Once bitten by the microwave bug, it is common to see the microwave afflicted striving to build gear for that next band, to improve system performance of the gear already working, and to make contacts over greater distances. Where does one start? The easiest way is on the 23 cm band where some commercially built equipment is available and kits for construction are readily available. There are also a reasonable number of operators active on this band, so contacts are relatively easy to make. Many will then jump to 10 GHz (3 cm band), probably the next most-populated band. The pattern will then be to acquire gear on the bands in between these two bands. Once active on all bands to 10 GHz, operators then begin the march upwards, often band by band.

One important consideration when moving into new territory is finding information. There has been a variety of very good books published for the amateur in the past. You will find some information in the standard handbooks, such as the ARRL and RSGB publications. There is a great deal of information available on the Internet. When you are looking at the offerings at the local ham fest events, keep your eyes open for the following books: Microwave Handbook (RSGB), VHF/UHF Handbook (RSGB), ARRL UHF/Microwave Experimenter's Manual, ARRL UHF/Microwave Projects Manual, the UHF Compendium and other books – check the offerings at the WIA or ARRL bookshops. All of these have excellent foundation material, even if some of the design and device information has become dated.

There are several Proceedings volumes available from the ARRL, such as the Central States VHF Conference, Microwave Update and other US "VHF" conferences. On the magazine front, seek out DUBUS and VHF Communications, both published quarterly. Another excellent source of information is the UK Microwave Group. Their website (www.microwavers.org) has back issues of their newsletter "Scatterpoint" available for download, as well as lots of other useful information. A subscription to Scatterpoint is inexpensive if you opt for electronic delivery.

Locally, consider attending the GippsTech Conference, held in July each year at Churchill, Victoria. This conference covers a great deal of material concerning weak signal work at VHF, UHF and microwaves. A Proceedings volume is published each year (containing the papers presented at the previous conference). Further details can be found at <http://www.vk3bez.org/>

Our initial considerations of the microwave bands will focus on the traditional narrow-band modes. I will also attempt to cover some basic test equipment considerations early in the series. If time permits, we may later begin to explore other possible techniques.

My next article will consider some aspects of what many consider as the "first" microwave band: the 23 cm band.

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Icom IC-756 Pro III HF – 6 m all-mode transceiver

Bill Roper VK3BR and Ron Fisher VK3OM

The IC-756 Pro III transceiver is the fourth in the 756 series, following the precedent of the IC-706 transceiver in which Icom continues to develop a successful design rather than start from scratch with each new rig.

The first in the IC-756 series was originally introduced just on 10 years ago. One of its distinguishing features was the large LCD display. Since then the radio has been significantly upgraded, first of all as the IC-756 Pro about seven years ago, the IC-756 Pro II about five years ago, and now the IC-756 Pro III about three years ago.

The Pro version of the IC-756 saw a major change in the design of the unit with the introduction of 32-bit floating point DSP filtering which has carried through to the later models, the introduction of the TFT colour LCD screen, and the addition of a high stability PLL reference oscillator providing a high frequency stability of ± 0.5 ppm. The IC-756 Pro II saw the introduction of selectable sharp and soft filter shapes.

What does the IC-756 Pro III have and do?

Looking at the IC-756 Pro III in comparison to the IC-756 Pro II, it is hard to notice any discernible difference. However, inside the rig there have been a number of improvements which are noticeable in weak signal reception. Icom say that they have included a number of developments from their high end transceiver, the IC-7800, into the Pro III. These include a new receiver front end which gives a +30 dBm third order intercept point producing a distortion-free high dynamic range. Also included are large inductors in the front end BPF (band pass filtering) stage to enable the receiver to handle both weak and strong signals with lower distortion. To add to this, the BPF switching circuitry has been improved with the use of low distortion diodes to reduce the effect of strong out-of-band signals.

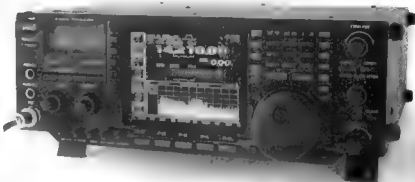


Photo 1: The IC-756 Pro III in operation on 14 MHz.

The Pro III uses a fundamental-mode monolithic crystal filter at 64 MHz as the roofing filter. It has a better shape factor and is less susceptible to intermodulation distortion under strong-signal conditions, and is the same 15 kHz filter used in the IC-7800.

Also, the Pro III preamplifiers use the same basic circuit design as the IC-7800 preamplifiers to minimise distortion and maximise dynamic range.

This combination of design improvements brings the Pro III into a new level of receiver performance for a mid-range transceiver.

As the Icom IC-756 Pro III is a current,

very sophisticated mid-range amateur radio transceiver, it is not possible to fully cover all of its features and capabilities without taking up most of the space available in this magazine. Therefore, this review will cover only those features which the two reviewers found most interesting and which we believe will be of most interest to potential purchasers of this radio.

The Pro III is a high performance all-mode HF and 6 m transceiver. The most noticeable feature of the Pro III when you first look at it is the brightly coloured 12.7 cm (5 in) square LCD display. This screen displays the frequency of the



Photo 2. The relatively simple rear panel of the IC-756 Pro III. Note that none of the sockets are labelled.

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This is not the news we wanted to bring to you... but... due to poor customer support resulting in low sales figures, we have been forced to move from being in a physical shopfront to become a part-time Internet-shop-only-based operation.

To a large degree this 'change' has occurred by virtue of more and more people purchasing internationally via the Internet, coupled with the market forces generated by the 'grey-market-ers' and eBay and the people who buy from them. With people continually purchasing from such 'non-authorised sources', the death knell has sounded for the Australian 'physical' radio and electronics shopfronts. OzGear's included

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main and second receivers, the mode of operation, the spectrum scope, a graphical display of the IF filters selection, and much more including the multiple menu selections for set-up and operation. Seven different fonts are selectable for the text on the screen. The reviewers preferred *Italic 1*.

The Pro III is 340 mm wide by 111 mm high by 285 mm deep, and mass of 9.6 kg. A built-in AC power supply is not included. The external PSU needs to supply 13.8 V at 23 A.

The receiver covers from 30 kHz to 60 MHz continuously and the transmitter is enabled for all Australian amateur bands from 160 m to 6 m. A useful feature is the warning beep when you tune past a band edge. All modes are covered including full RTTY receive ability, although you can only transmit up to a 62 character RTTY message from the eight inbuilt memories. For full RTTY performance you require an outboard Terminal Unit,



Photo 3: The large LCD screen displaying the mini spectrum scope and the filters. Note the graphical representations of the 'soft' and 'sharp' filter shapes.

TNC or PC with dedicated software, as is the case with most current transceivers.

The 32-bit floating point DSP and 24-bit AD/DA converters provide many useful DSP features. AGC pumping is completely eliminated, and there is full control over AGC attack and decay times with programmable slow, medium and fast presets.

The DSP-based twin passband tuning is very effective in reducing signal and noise interference to the received signal. With the DSP enabled IF filtering, a variable choice of selectivity options

is available from 3 kHz on SSB out to 9 kHz on AM. This extends into the filter shape which can be set to 'sharp' (a flatter top to the filter shape which actually produces a wider frequency response) or 'soft' (which produces more of an analogue filter bandpass). The reviewers found the 'sharp' setting to be preferable on SSB, whereas the 'soft' came into its own on CW.

A strong feature of the Pro III is the DSP noise reduction facility. The level and intensity of this can be adjusted by turning a rotary knob. It is fast acting and very effective at removing all sorts of noise and static, and enhances



Photo 4: The matching SM-20 microphone.

the signal readability without muffling or distorting the recovered audio sound too much. However, it does slightly attenuate the receive audio output when in use. One of the reviewers lives in a noisy suburban environment and uses several DSP noise reduction devices with his transceivers. To his thinking, the Pro III DSP noise reduction facility was outstanding.

In addition, the Pro III has a standard, adjustable noise blander which is quite effective on pulse noise such as that produced by car ignition systems.

To enable rejection of interfering heterodynes on receive; the Pro III has not one, but two notch filters. The manual notch provides an incredible 70 dB of attenuation of a single frequency heterodyne without reducing the performance of the AGC. It is not, however, unusual to hear clicking sounds in the speaker when tuning the manual notch to frequency as the DSP characteristic changes. The automatic notch filter will track two or more interfering signals simultaneously without signal loss or distortion.

The transmitter power is variable from about 2 W to 100 W on all bands on all modes except AM where the maximum power according to the manual is 40 W.

An analogue meter serves as an S meter on receive and on transmit is selectable to show power output, SWR, compression and ALC level. The large LCD screen can also be programmed to show an excellent bar-graph version of the meter.

Band changing is quick and easy with dedicated buttons for each amateur band and one for general coverage. Triple band stacking registers are extremely convenient for band hopping.

There are 101 memory channels, but what is particularly useful is the five channel (or set menu changeable to 10 channels) memo pads which enable the quick writing and recalling of frequency, operating mode and various other items such as bandwidth, AGC, etc. This memo pad facility is in addition to the 99 memory, plus two scan limit memories, channels.

The Pro III receiver has a dual watch function which enables reception of two

signals in the same band simultaneously. This enables the operator to keep an ear on two frequencies at once. The recovered audio between the main and secondary receive frequencies is adjustable with a balance control. In some ways this is not as good as having two independent receivers but, nevertheless, is a very useful facility.

A handy feature is a digital voice recorder which provides 90 seconds of recording from four memories for transmit messages. On receive, a button push enables the last 15 seconds of received audio to be stored in each of an additional four memories for playback.

An IF DSP speech processor is provided with three band-width settings, treble and bass response adjust, VOX and a transmit monitor.

For the CW enthusiast, a straight key or external keyer can be connected to a ¼ inch jack on the back panel, or a keying paddle can be connected to a ¼ inch jack on the front panel to use the inbuilt keyer. Full and semi break-in is available with a front panel adjustment for delay.

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tuning) controls, you can narrow the receive filters for CW down to 50 Hz with an excellent shape factor and steep skirts, and no suggestion of ringing. This is where DSP filtering scores in comparison with standard IF filters.

Rear panel facilities include the usual Icom interfaces for connection to data terminals and automatic control of matching Icom linear amplifiers and ATUs, two SO239 antenna connections (one of which can be setup to be a receive antenna only) and a separate RCA receive antenna socket which are selectable from the front panel (and are stored in band memories), and connections for a transverter.

The inbuilt automatic ATU (antenna tuning unit) matches the transceiver to the connected antenna covering from 0.1 to 60 MHz in 10 bands. Once the ATU matches an antenna, the ATU settings are memorised as a preset point for each frequency range in 100 kHz steps so that when you change the frequency range, the ATU settings are automatically changed. You can deactivate the ATU if the SWR is 1.5:1 or less, and it will automatically reactivate when the SWR exceeds 1.5:1. We found the automatic ATU to be quite fast in operation.

Two 24 hour clocks are displayed in digital format in the top right hand corner of the LCD display. These can be set to any two time zones. We found their time keeping to be quite accurate.

The IC-756 Pro III on the air

When switching on the IC-756 Pro III, an annoying feature is the 10 second delay before operation commences while the screen advises you that calibration of the DSP unit is taking place.

Another intriguing feature is that the LCD screen can take up to 10 minutes before it reaches full brilliance, although it is quite readable from start-up. This delay is mentioned in the handbook and intrigues the reviewers whose LCD TFT computer screens appear to be at full brilliance immediately they are switched on.

A first impression when receiving a signal on the Pro III is the clean recovered audio response. The audio from the speaker built in to the top of the transceiver's case is surprisingly good, but is truly outstanding when using a

good quality external speaker.

One reviewer was particularly impressed with the audio recovered from AM broadcast signals. This was helped by the IF bandwidth on AM being able to be selected to 3, 6 or 9 kHz.

Tuning steps are very convenient and, like most other features of this radio, can be personalised via the extensive menu system. For normal SSB use you would most likely select the 10 Hz step tuning speed. For such instances as digital signal reception, the 1 Hz steps are very useful. For fast movement, the 100 Hz tuning rate comes into its own. In AM, the tuning steps can also be set at 1 kHz steps. In all other steps except the 1 Hz rate, where the dial readout is to 1 Hz, the dial readout is to 10 Hz only.

One new feature compared to the IC-756 Pro and Pro II is enhanced ability to tailor your transmit audio. With the PRO III you can dial in customised upper and lower transmit bandwidth roll-off frequencies for the wide, mid and narrow ranges.

While the PRO III's bandwidth choices are not unlimited, they do allow for low-end selections for each range of 100, 300 or 500 Hz; and on the high end, they're 2500, 2700 or 2900 Hz. This means the absolute maximum SSB transmit bandwidth is 2.8 kHz, somewhat less than the PRO II. The narrowest transmit bandwidth remains at 2.0 kHz.

The reviewers found unquestionably the best SSB transmit audio quality was produced with the widest available bandwidth. We also found that the most pleasant transmit audio was obtained with the equaliser setting at +5 at the high frequency end and -3 at the low frequency end.

One of the reviewers checked the AM capability of the rig by joining the 80 m AM net one evening. The best AM transmit audio quality was found to be when the power output was set at 25 watts rather than the 40 watts as specified in the Pro III manual.

One PRO III improvement that CW operators will appreciate is the newer model's keying. The PRO II shortens the dits when operating in full break-in mode but this shortcoming is totally eliminated in the PRO III. Surprisingly, this improvement is not mentioned anywhere in the Icom advertising for the Pro III. Both radios sound just fine in

semi-break-in (VOX) mode, however.

We plugged a key into the front panel connection to the inbuilt keyer and found the keyer to work very well with a good range of speed adjustment and break-in delay adjustable from the front panel.

Data communication

When the IF filter passband is reduced to 500 Hz or less in SSB data mode, special bandpass filters are automatically selected. This sharpens the filtering for better rejection of interfering signals. At the same time it turns on the ¼ tuning step facility which enables more accurate tuning for PSK31, SSTV or AFSK modes. Your own computer and software is required to use these modes.

The operating 'feel' of the Pro III

The reviewers were pleasantly surprised at the relatively small number of front panel controls for such a complex transceiver. Set up on the desk in front of the operator, use of the Pro III was initially quite intuitive and straight forward. Most facilities were able to be used effectively without recourse to the operating manual.

Later, when we became more used to the rig, we explored the many possibilities available through use of the extensive menu system. Virtually everything is adjustable and most of the menu selection buttons provide different outcomes when held for one second or more rather than simply being momentarily pressed. This is where the fun in using the Pro III really comes into its own.

A very useful feature of the Pro III is the spectrum scope which displays the band activity over a bandwidth of ± 12.5 , ± 25 , ± 50 or ± 100 kHz centred on the receiver frequency. There are two versions of the spectrum display, normal or mini. When the mini spectrum scope is displayed there is room on the main LCD screen for other menu items such as the filter display (see photo 3).

Having used the spectrum scope feature on the Pro III, it was difficult to go back to a transceiver which did not have this facility.

The main tuning control is heavily weighted in keeping with Icom tradition and is smooth in operation. Spinning the knob rapidly increases the tuning rate.

SM-20 microphone

On loan with the rig was the SM-20 desk top, base station microphone. It is a unidirectional electret microphone with up/down frequency switches built into the base and a switchable low cut audio response facility under the base.

There is also a variable gain control located under the microphone base. The SM-20 seems ideally matched to the IC-756 Pro III in both physical appearance and in audio characteristics.

Operating manual

The 117 page manual is comprehensive in its coverage of how to use the many features of the Pro III. What a pity the detailed description and coloured photographs of the transceiver as presented in the advertising brochure were not also included in the manual. Also, it would enable the user to much more quickly find what he is looking for in the manual if it included a detailed index in addition to the Table of Contents.

Conclusions

The Icom IC-756 Pro III sets a standard of operating features which is not equalled in any of the contemporary

transceivers in the same price range. We found it to be a very user-friendly piece of equipment to operate with many excellent features. It will be interesting to see whether there is a Pro IV version in due course and whether it will cover 2 m and perhaps 432 MHz.

Both reviewers were extremely reluctant to part with the rig. Quite apart from the usual excellent facilities one expects from a transceiver of this quality, the features that stand out in the minds of the reviewers include the outstanding transmit and receive audio quality, the effectiveness of the DSP noise reduction, and the usefulness of the spectrum scope.

The reviewers did not try the transceiver on 6 m due to the lack of a suitable antenna, but expect it would perform equally well on this band.

Our thanks to Peter Willmott VK3TQ of Icom Australia for arranging the loan of the review rig.

The list price of the IC-756 Pro III is \$4,449, and that of the SM-20 is \$325.60. However, by shopping around, you should be able to do a little better.

Photos by Bill Roper VK3BR

WIA News continued

and Director Phil Wait VK2DKN on Saturday 30 June 2007.

The Club had invited the President to visit the Club some time ago, and the WIA was very anxious to increase its ties with the club, as Westlakes provides the WIA's Outward QSL service, as well as the New South Wales Inwards Bureau, all thanks to QSL Bureau Manager Alec Efimov VK2ZM and his team. The visit gave the President an opportunity to learn more about the Bureau and to seek Alec's suggestions.

At the formal meeting on Saturday afternoon Michael talked about the many current activities of the WIA, particularly as manager of the amateur examination system and as the representative of Australian amateurs at the upcoming ITU conference, and Phil described the current developments in the fight against BPL interference.

Westlakes President Russell Ashdowne VK2KEG thanked Phil and Michael, saying that he hoped that the links between the WIA and Westlakes would be further strengthened.

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GippsTech the 10th

Roger Harrison VK2ZRH

Australia's 'stand out' amateur radio event reached a significant milestone this year and deserves to set more in the future.

The GippsTech Conference is the 'premier' amateur radio technical event in Australia. Held annually each July at the Monash University campus in Churchill, located in the heart of Victoria's Gippsland region, the two-day event is organized by the Eastern Zone Amateur Radio Club. The 10th was held over the weekend of 7-8 July, attracting some 100 registrations to hear a dozen speakers deliver 15 presentations. Participants this year came from VK1, 2, 3, 4, 5 and 7.

Although I'd long heard about GippsTech and the wondrous things said and done over the years, even to the extent of my chasing up copies of presentations from past events, this was the first I had ventured to attend. I was encouraged to do so during a casual conversation I had with Conference Chair Peter Freeman VK3KAI at the Wyong Field day back in February. A persuasive fellow. He subsequently talked me into giving not one, but two, talks.

The event actually starts with an informal get-together and dinner on the Friday night. This year's was well attended by participants and partners. It was a convivial evening, with some long-past acquaintanceships renewed and new ones made. The electric anticipation of a stimulating two days of presentations, discussions, challenges, arguments and debates crackled in the bistro of the Morwell Hotel Motel. I was not disappointed.

This year's subject matter ranged across UHF and microwave hardware techniques, software tools and techniques both for equipment design and on-air operation, VHF-UHF propagation, portable power supplies, moonbounce and new challenges for VHF-UHF operators.

It was refreshing to see a younger generation deliver talks on practical topics and their own experiences, such as those by Richard Gipps VK3ZCL on bandpass filter design (with giveaway software), Andy Sayers VK2AES on a 23 cm cavity-backed dipole feed (with



Robbie VK3EK and Ruth Cook lead the participants of the Alternate activity (aka Partners' Tour) off to the coach. Photo by Chris Morley VK3CJCK.

home-brewed example shown) and the exposition by Charlie Kahwagi VK3NX on microwave EME trials and successes. Home brew lives!

Two out-of-left-field talks sparked some lively interest: Bob Tait's (VK3XP) on auto alternators as portable field power supplies (with good industry 'insider' info) and David Smith's (VK3HZ) effort on Google Earth tools – giving user-customisable aerial views of the Earth with overlays providing locations of beacons, stations and field day locations (for example), with other overlays possible, showing aircraft positions, propagation paths, etc. Neat!

The parade of hardware presentations was truly inspirational, demonstrating what can be achieved with home workshop tools. Dale Hughes VK1DSH set the standard with a home brew network analyzer to 2.5 GHz, showing what is possible with bits from surprising sources. Peter Freeman VK3KAI bravely bared his soul on his prototype 2.3/2.4 GHz transverters – works in progress. Neil Sandford VK2EI gave three short

talks covering the practicalities of his simple microwave PLL (revisited from an earlier GippsTech), a 24 GHz waveguide power monitor, and waveguide quarterwave transformers, all produced with modest home workshop tools.

On the subject of propagation, Brian Tideman VK3BCZ followed up on talks he had given at previous GippsTech events with his intriguing observations and views on 144 MHz propagation, Es, Sun and Earth, in the true amateur tradition of technical investigation and self-training. Your scribe delivered a lecture on sporadic E (Es), how it happens, its vagaries and habits, and how we might beat the 'classical' MUF. I issued a challenge: who will make the first 432 MHz Es contact? Judging from a few crestfallen faces, I shattered some fondly held beliefs, and from the 'light bulb moments' that appeared on others, the pennies dropped on long-remembered puzzles about Es propagation.

With some late arm-twisting by Peter VK3KAI in the weeks leading up

to GippsTech, I gave another talk on the haunts and habits of transequatorial VHF-UHF propagation, posing the next challenges for VK offered by this exciting mode. The amateur radio community still has much to contribute to propagation observation and research.

Two out-of-right-field presentations provided some awe-inspiring highlights. Chris Skeer's (VK5MC) travelogue and report on the European EME 2006 Conference showcased some of the well-known European EME operators and their stations. Wow! Andy Sayers VK2AES treated us to a video of the microwave radar technologies his employer, CAE Systems, is manufacturing. Clever stuff is still produced by Australian industry.

Saturday's Open Forum saw WIA President, Michael Owen VK3KI, outline the Institute's recent achievements and the challenges it faces about its role and functions in the immediate and longer future. He stimulated some frank and fearless debate; a wide variety of views were aired and opinions exchanged. Valuable feedback for all.

The Sunday closing forum threw up the subject of beacons, their operations, locations, frequency allocations and role in today's VHF-UHF activities. A lively, animated debate led to a sort-of consensus that the 'beacon policy' prevailing for the past 30 years needs revisiting and revitalizing.



Alan Devlin VK3XPD was kept busy with discussions and selling his useful items during every break in the main lecture program. Photo by Waldis Jirgens VK1WJ.



The audience listening intently during one of the presentations. Photo by Chris Morley VK3CJX



Many gathered at the Morwell RSL for the Conference Dinner on Saturday evening. Photo by Chris Morley VK3CJX

From both a participant's and a presenter's viewpoint, the organization and conduct of the Conference gets a nine out of ten. The lecture theatre and its audiovisual facilities are first rate. The facilitation of eyeball QSOs and discussions during breaks is good – an important component of these events. Good support from equipment suppliers adds an extra fillip and was appropriately different from that seen at hamfests and field days. And the partners' program is popular! GippsTech the 11th? train, plane or automobile get there!

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QSL cards from the WIA National QSL Collection

Ken Matchett VK3TL, Hon. Curator:
(03) 9728 5350, wiaqslcollection@wia.org.au

There were 'pirates' about in the 1920s

The WIA would like to thank the donors of QSLs to the Collection, amongst them John G3BDQ of Hastings, England, who has sent another batch of vintage QSLs. Of particular interest was bS2, a Belgium QSL dated 1925. Single alphabetical prefixes (often written in lower case like this one) indicated the country of origin of the QSL. Single letter prefixes included B=Belgium, G=Great Britain, (before the division of Great Britain into Scotland, England, Isle of Man, Channel Islands etc), A=Australia, C=Canada, Z=New Zealand. At this time several countries including Belgium did not permit amateur transmissions, but this failed to stop illegal transmissions. Some QSLs sent to Australia had a note warning not to mention station call signs on the reply QSL or envelope. It is very probable that the operator of station bS2 was a 'pirate'.

Jeff VK6AJ from South Perth uses a Yaesu FT990 and a 6-element log periodic at 35 feet. Amongst his latest contributions are the following: Switzerland HE3RSI. A QSL looking every bit like a Swiss SWL. It is actually a special issue QSL commemorating Swiss Radio International. Originally the numeral prefix served to indicate a region or state of a country as in, for instance, W1 to W zero (States of the USA). All States, except California, were obliged to share a number. Since that time prefixes have been used in their thousands to celebrate national events, and when dates were used to characterise these events the prefix numbers became very large indeed. Jeff sends the QSL LZ11951R from Bulgaria (the date of celebration of St John of Rilä is shown) and LZ128LO (128th anniversary of the liberation of Bulgaria from the Ottomans. Jeff also sent Nepal 9N7DX, Iraq Y19LZ, Vietnam 3W8A, Kazakhstan UN7TX, Poland SPOTPAX, (TPAX was the Polish call sign used in the first documented QSO with a foreign station in December 1925), HF1EU (celebrating Polish access to the European Union) and HF7IARU (celebrating 75 years of the



A rare single letter prefix QSL from the 1920s.

PZK), Croatia 9A80A (80th anniversary of Radio Club Zagreb), South Africa ZS75PTA (75 years of Pretoria ARC), Japan: an unusual callsign 8N1C50-A (50th anniversary of Chofu-city).

From Trevor VK4RB: Puerto Rico WP3R, Antigua V21-AK, Anguilla VP25EI (25 years of separation, St Barthelemy Island FJ5BL, Revilla Gidedo XF4T, St Paul Island WV2B/CY9, Comoro D68GA, Cape Verde D44BC, Morocco CN8GI, Andorra C31VA, Botswana A22EX, Australia VK6ISL (OC 214), Indonesia YE8I (IOTA OC 208), Uganda 5X1XX, Libya 5A29 (Celebrating Revolution), Fernando da Noronha PY0FX.

Graham VK2FGI, one of our top DXers, sends some nice DX. Spain AM7, Costa Rica TE32, Mongolia JF60, Argentina AY3, Colombia HK0 IOTA SA017, Cuba T40, Namibia V51 etc.

The QSLs of John Isaac VK3PL have been received by the WIA. Nearly all were early post-World War 2 vintage, amongst them some of considerable archival value, including French Indo-China F18KVA before its break-up into Laos, Vietnam and Cambodia. QSLs for

Indo-China are valid up to 21 December 1950, although there is some controversy over this date. (Laos and Cambodia gained full independence in 1954.) The QSL W2WMV/C9 from Mongolia used the old China prefix of C9, since at that time Mongolia had become a Chinese territory. The card was dated 1948. Amongst other interesting QSLs received was MP4BAD, a card from Trucial Oman (now UAE), which was then under military occupation. The military prefixes of several countries were not assigned by the ITU. However the ARRL sanctioned their validity for the DXCC. Other military prefix QSLs included: Somalia MD4GC, Eritrea M13UW, M13DX, and M13ZZ. More DX included: Belgian Congo OQ5BQ (1949), Swan Island KS4AI, Tanganyika (now Tanzania) V93SS, and a couple of rare deleted ARRL countries: Tibet AC4NC and French Cameroons FE8AB before independence ended French occupation. Pakistan AP2Y, Chagos VQ8AB, China C74T, CT7N, CIAN

American forces in China in 1948 (the QSLs were posted from "Roosevelt Road,

continued on page 30

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VK2

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Clubs

Waverley ARS held another successful annual auction in June. There was a good array of equipment on offer, which was snapped up by the large crowd. Waverley holds exams at regular intervals – go to exams@vk2bv.org or for club details go to the web site vk2bv.org

The **Mid North Coast ARC** remind us of their Field Day in January 2008. They also have produced a series of DVDs on the majority of amateur equipment manuals.

Oxley Region had another successful Field Day over the June long weekend at Port Macquarie. They have a monthly meeting on the first Saturday afternoon of the month and informal gatherings on the second and fourth Friday evenings. Contact at P. O. Box 712 Port Macquarie 2444.

The **Orana Region ARC** have a bi-monthly meeting at Dubbo on the last Saturday of the odd month. Make contact in the Western area via repeaters VK2RCC 6800, VK2RCD 6725 or VK2RDD 9950.

Fishers Ghost ARC meet on the last Wednesday at 7 pm at the Campbelltown Performing Arts High School.

Blue Mountains ARC meet on the first Friday evening at the 1st Blaxland Scout Hall in Glenbrook. Their annual Winterfest may become their Springfest while they determine a date and venue. Check out their web site at www.bmarc.org

This month **Summerland ARC** have

QSL collection continued

Tientsin!), Falkland Islands VP8AI, British Honduras (now independent Belize), Gold Coast ZDF4AM – a rare deleted country. French India FN8AD dated 1951, now deleted since India's independence Australia AX3T, a specially assigned prefix for operators on 196 kHz, France HW3AT, England GB4SG St George's Day (all GB prefixes from Great Britain are special event QSLs), Bulgaria LZ13CWT (13

their HAMFEST on Sunday 12th from 9 am. Their club rooms are in Richmond Hill Road, Goonellabah, vk2src@arsc.org.au

WICEN NSW has a busy time coming up. At the end of this month is the annual 400 km Shahzada Horse Enduro for the week 27 – 31 in the St. Albans valley. They have a request for assistance with the Snowy Hydro Upper Murray Challenge in the Khancoban area Saturday 6th October. Their AGM is scheduled for Sunday 23rd September. The Hawesbury Canoe Classic is over the weekend 27 – 28 October. Contact 0408 397 217 or www.nsw.wicen.org.au

ARNSW

In June, the office operation of ARNSW moved from the temporary office in Parramatta to the VK2WI Dural property, 63 Quarry Road. By now, the former office telephone [9689 2417] may have been replaced by 02 9651 1490. The Freecall number remains as 1 800 817 644. FAX becomes 02 9651 1661. The postal address remains for the moment at P. O. Box 9432 Harris Park NSW 2150. There are no changes to the email – vk2wi@ozemail.com.au and the web address www.arnsw.org.au. Check the VK2WI news sessions and the web site for current details of the office arrangements.

All QSL Bureau operation in VK2 is provided for the WIA by Westlakes ARC. Contact 02 4958 1588. Those

centuries of Bulgaria), USA W0CXX – a QSL of Arthur Collins of the Collins Radio firm. The Collins transmitters and receivers of the 1950s were regarded as the Rolls Royce of amateur radio equipment.

More acknowledgements next month.

Please support the WIA Collection with your donation.

73 Ken

former members of the NSW Division who were Bureau users should make new arrangements with Westlakes as the previous arrangements ended last month.

Following the success of the Trash and Treasure and 50th anniversary at Dural in May, another major event is planned for the last Sunday [25th] of November. The next T&T will be on Sunday the 30th September.

A major membership renewal period occurred in July for ARNSW Members. Thank you to those who have returned the necessary paperwork. A Membership application form can be down loaded from the ARNSW web site. Members who have a mail redirection address with ARNSW will be advised of a change to one at Dural so that they can change records with ACMA.

VK2WI

On the first of July, VK2WI added a transmission on 60 metres – 5423.5 kilohertz – to the morning VK2WI News portion to provide a signal source for the country relay stations. The transmitter is 100 watts PEP into an inverted vee dipole in the USB mode. In early July, good reports had been reported from the intended target area, which is from where the 80 metre morning groundwave ends and before the skip on 40 metres comes to earth.

The 30 metre transmission on 10.125 MHz, which has been operational for the last couple of decades, is currently going well across Australia. VK6 have chosen the same frequency and provide a good signal on our side of the country. Unfortunately, there is a time clash during parts of both transmissions which may affect some listeners.

VK2WI will transmit the RD opening from 1730 hours on Saturday the 11th. Telephone contact with VK2WI during the broadcasts periods remains at 02 9651 1489. For those unable to listen to either Sunday news bulletins you can read the script on the web site www.arnsw.org.au

73 – Tim VK2ZTM

VK3

Amateur Radio Victoria News

Terry Murphy VK3UP

Website www.amateurradio.com.au

Email arv@amateurradio.com.au

Lighthouse activation

The International Lighthouse & Lightship Weekend will be held over the weekend of 18 and 19 of August and Amateur Radio Victoria (VK3WT) will activate the historic Timeball Tower and Lighthouse at Point Gellibrand, Williamstown on both days.

Anyone interested in operating or assisting the station should contact the coordinator, Terry Murphy, VK3UP at vk3up@amateurradio.com.au

Last year it was pleasing that new licensees dropped in to say hello and a few got on air to help fill the logbook.

Resources within the membership

It has been suggested by some members that a list be prepared of those with trade and professional skills who could help Amateur Radio Victoria.

This year significant expenditure has been required on electrical, plumbing and other work. The Amateur Radio Victoria Council has decided to explore the possibility that members may be able to give 'mate's rates' for the provision of such services.

It would be a win-win situation for both the member and the state-wide organisation. We are in need of trades people, including a painter, so if you can help please contact the Secretary Ross Pittard VK3FCE.

VK3 Winter Alpine Expedition

For many this winter has felt colder than usual, partly due to the mild and dry conditions experienced in the past couple of years.

The alpine regions of south-eastern Australia are recording some of the best snowfalls for quite a while, which is very pleasing to a group which includes radio amateurs who have a tradition over the past decade to trek across the back country to the Bogong High Plains.

No warm ski lodges or other creature comforts for these guys. Stephen Warrillow VK3SN, Gerard Warrillow VK3JPA and Mat Lumalas VK3HFI

strap on their skis to spend four days away from civilisation on 2-5 August.

Their ultra-light solar powered multimode station will be in action each afternoon and into the late evening so listen out on all bands HF through to the local 70 cm repeaters.

Power for the radio comes from sealed lead-acid batteries and roll-up solar panels. While they do enjoy making contacts, there's a serious side to it. Should there be an emergency the amateur radio will put in them touch with the outside world. Mobile phones just aren't reliable in that area.

The team is well prepared for their adventure, which they see as a personal challenge that allows them to truly enjoy the beauty of the snow covered high country, with views all the way to Mt Kosciuszko in New South Wales on a clear day.

Foundation Licence Sessions

Upcoming dates: 25 & 26 August, and 15 & 16 September, at Box Hill North.

Know someone who could be interested? Contact Barry Robinson VK3JBR 0419 808 323 or arv@amateurradio.com.au

Deceased estates

The relatives and friends of a radio amateur no longer able to continue with the hobby as the result of illness, moving into a nursing home or death, often need help and advice.

Over many years WIA Victoria - Amateur Radio Victoria has provided a service to ensure the appropriate disposal of equipment and other material.

Each case is different. It may be a simple amateur radio station, or a room, garage or shed full of miscellaneous items collected over decades.

Knowledgeable people are available to evaluate the equipment and provide advice on whether it can be sold, donated or needs to be discarded. To obtain help please contact Terry Murphy VK3UP phone 0428 123 044 or vk3up@amateurradio.com.au

Busy month on air

In addition to ILLW mentioned earlier, the Remembrance Day Contest, Australia's major amateur radio contest, occurs in August.

It commemorates the memory of those radio amateurs who lost their lives as a result of service to their country during World War II.

The Remembrance Day Contest starts at 6 pm (0800 UTC) on Saturday 11 August ending 24 hours later. It is held on the weekend closest to 15 August, the date on which hostilities ceased in the south-west Pacific.

The rules were published in last month's *Amateur Radio* magazine and the internet. If you've not taken part before, read the rules, get on air, exchange some numbers and have fun in what is the 'friendly' contest.

The main aim is to file an entry in the contest which goes towards the score of your state and is the determinant for the winning state. There are also individual certificates on offer, see the rules.

The ALARA (Australian Ladies Amateur Radio Association) contest is run over 36 hours on 25-26 August. Check out the rules. For us males (OM's), only contacts with YL stations count, while the YL can contact either OM or YL stations.

ARNSW

Office relocated to

VK2WI

Phone

02 9651 1490

See VK2 notes.

VK3

Frankston & Mornington Peninsula Amateur Radio Club

Peter Willmott VK3TQ

FAMPARC was recently involved in both 80 m and 160 m Trans-Tasman Contests.

Our able contest team, led by Roy VK3GB and Brian VK3VBJ, constructed a 2 element wire beam pointing over the pond to New Zealand.

In the 80 m section, this combination enabled the club to take 2nd place and overall highest point score for an Australian Station in the 6 Hour multi-op event. The same antenna formula was applied for the 160 m contest.

The club is hoping that with the big effort putting up the 160 m wire beam, the use of a new radio in the Icom IC-756ProIII and some enthusiastic "learner" operators driving the station, like secretary David Macaulay VK3EW and Stephan Nickolic VK3TSN, we have given the contest a good shake.

The club normally makes the contest a social event. Many of the club members come down and enjoy a party atmosphere and a lot of fun is had by all. Below are

some photos of the event.

FAMPARC is also maintaining its title as the "Education" club. In addition to the bi-monthly Foundation courses, the club is currently running an Advanced licence course in conjunction with the Moorabbin and District Amateur Radio club.

The course currently has 17 students and, pleasingly, many students are new Foundation licensees from previous club courses.

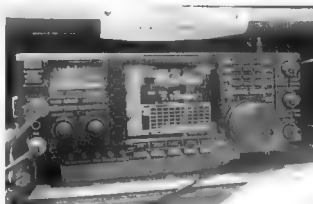
FAMPARC and Moorabbin are excited that their students are taking the challenge to upgrade.

The class is being run by Nominated Assessor Peter Willmott VK3TQ, co-instructing with Ken Halse VK3ZER and

WIA Assessor Graeme Lewis VK3GL. The class will run till November, reminiscent of the traditional AOCF course. The students have completed their Regulations assessments and are now pushing full steam into the Theory. Peter said that it was a relief not having to dust off the CW keyagain.



Club Photo



The review unit in action at the TT 160m contest



Stephan Nickolic VK3TSN in Action

VK3

Geelong Amateur Radio Club (GARC)

Tony VK3JGC

Election of a new Club President

At the general meeting on the 13th of April 2007, Lee VK3PK stepped down from the Presidency after 3 years in the role, handing over to Ian VK3VIN. Dallas VK3DJ remains as Club Secretary and Kevin VK3FKEV takes over the role as Treasurer from Don VK3IT. New committee members were Arno VK3YAP and Tony VK3JGC, with David VK3VLH continuing to represent the younger club members.

One of the major planks of the club mission statement is to significantly raise its profile both within the world of Amateur Radio and the Geelong Community as a whole. To that end a new post of Publicity Officer on the GARC committee has been created and filled by the appointment of Tony VK3JGC, at the general meeting on the 1st of June 2007.

Club Meetings

The GARC has been in existence since 1948 and meets every Friday at Storrer Street in Geelong at 7 pm for an established programme of lectures and presentations covering all aspects of the hobby; this also includes hands-on workshops for such activities as antenna construction. The programme also includes non radio topics, as the club membership accommodates a wide range of interests. The club building is easily distinguishable, with its two prominent antenna towers at either end; visitors are always welcome. The club building is equipped with a TV lounge where most members congregate prior to the meetings, an extensive library containing most of the popular radio magazines, a radio shack VK3ATL, that can operate from 70 cm to 160 m and a well equipped presentation/meeting room with projection facilities.

On the first Wednesday of each month the GARC Microprocessor Group meets to develop and build software packages aligned to ham radio activities. The most notable of these has been the "Rig

Masta" that plugs into the CAT input of several current transceiver models to enter frequencies digitally from a key pad. This project was initially developed for the visually impaired radio hams but has been taken up by those wanting a more convenient frequency entry mechanism.

Also Wednesday at 8 pm (EST) is the club on air night as VK3ATL, using the VK3RGL Geelong repeater on 147.000 MHz.

Licence training

The GARC has an established and accredited training programme to take interested non-licensed, members, both male and female, through the Foundation, Standard and Advanced call requirements both theory and practical operating procedures; this was initiated by Lee VK3PK who, with Chas VK3PY and other experienced club members, still continues to provide this service. So far over 20 members have acquired their 'F' call signs utilising this service and currently 6 of those have progressed on to gain Standard and Advanced calls.

Repeaters

The GARC members Ken VK3NW and Lee VK3PK maintain the well known Geelong VHF repeater VK3RGL on 147.000 MHz as well as VK3RGC at Montpelier on 147.125 MHz; the latter repeater is currently undergoing operational improvements. A third repeater supported by the GARC, also VK3RGL, but on 439.575 MHz located at Mt. Anakie is also undergoing development work and is targeted for going on air in August 2007. The VK3RGC repeater has the facility to operate IRLP, engineered by Lee VK3PK., and will be operational in that capacity in the near future.

Club Member Activities

— Antennas, SHF and beyond.

Two club members David VK3QM and Chas VK3PY have taken a particular interest in both the building and operation of communications equipment operating

SHF, with David VK3QM and Chris VK3AML extending these activities through to modulated light. The results have been astonishing in the terrestrial distances achieved and will be the subject of a more detailed article later.

Dallas VK3DJ has written an article for AR on Squid Pole Antenna Construction – this is of particular interest to those operating static mobile and Gavin VK3VTX has been using one of these on a regular basis on 80 metre skeds with club members whilst travelling around Australia in his campervan.

Social and Community Activities

To add to the broad spectrum of activities, the GARC has also been involved in providing radio communications for a major Geelong event - The Celebration of All Abilities Festival, lead by current President Ian VK3VIN. Representatives of the GARC will be hosting a demonstration of Amateur radio at the Winter Festival on 29 July.

The GARC winter Solstice dinner took place at the club house on the 22nd of June and was well attended, involving the club members, partners, family and friends. The next Solstice dinner in June 2008 will also celebrate the 60th anniversary of the formation of the Geelong Amateur Radio Club.

Going Bush

Around every couple of months throughout the year, a group of up to a dozen from the GARC go 'bush' to Dereel, south of Ballarat, on a 22 acre site, owned by Dallas VK3DJ, to spend a long weekend in a 28 x 14 foot shed amongst hundreds of gum trees. The primary activities being a quiet environment for operating the HF and VHF bands, experimenting with antennas and drinking lots of red wine!! A recent addition to the on-site facilities is a petrol generator to work in conjunction with a large solar panel to charge the batteries used to power the radio equipment and lighting

VK3

Geelong Radio and Electronics Society (GRES)

Rod Green VK3AYQ

The second quarter of this year has certainly been a very productive time for our members. There has been a constant flood of homebrew projects completed during this period, and new projects started. The final judging of our crystal set competition took place in a light hearted atmosphere. This was a most popular contest and many entries were received. Winner of the novice section was Brian Crabtree. There were two finalists in the open section. Runner up was Keith Stickland VK3XKS and winner was Pippa Reeves VK3YME. This contest was so popular that it is envisaged a similar contest will be held next year.

Another construction project was a 2 m portable antenna. The design of this antenna was described in a recent

WICEN news bulletin.

The antenna is simple to make from a single length of 50 ohm coaxial cable and will work well across the whole of the 2 m band. Members spent one evening constructing the antenna and the next week we had a tune-up night. The antennas were checked by Neil VK3XNH using the club's commercially made antenna analyzer. In total, there were 22 antennas made and all are now working correctly.

Another project that some members



are working on at home is trackers for APRS use. These are being built from kits obtained by John VK3LJS. So far

TET-EMTRON

Antenna Manufacturers

New Tet-Emtron Vertical Range

- All Aluminium with Stainless steel hardware.
- No adjustment needed to main antenna.
- Light.
- Free standing—no intrusive guy wires.
- 1 kW PEP power rating.
- Can be ground mounted or elevated.

The new Tet-Emtron Vertical range is designed with ease of use in mind. Tuning is done by the radials when the antenna is in its final position (where possible). The radials can either lay on the ground, be buried or hang from the elevated antenna. The antenna comes with a set of radials that has a resonant radial for each band. Further sets can be ordered from TET-Emtron if desired.

See the web site for more info and a complete dealer list.

40 Blackburn Street
STRATFORD
Victoria 3862 AUSTRALIA
www.tet-emtron.com
Email: rawmar@hotmail.net.au

Ph: 61 3 5145 6179
Fax: 61 3 5145 6821
ABN: 87404541761

New

Tet-Emtron Vertical Range

TEV-4 TEV-3 TEV-3 Warc



Antenna	TEV-4	TEV-3	TEV-3 Warc
FREQUENCY	7, 14, 21, 28 MHz	14, 21, 28 MHz	10, 18, 24 MHz
ELEMENT HEIGHT	4090 mm	3800 mm	5025 mm
FEED IMPEDANCE	50 ohm	50 ohm	50 ohm
Max. RADIAL LENGTH	10.7 metres	5 metres	7.5 metres
SWR	1.5 or less	1.5 or less	1.5 or less
POWER RATING	1 kW	1 kW	1 kW

VK3

11 kits have been or are in the process of being made up. We can therefore look forward to more APRS activity in the Geelong area in the near future. In addition to this, 2 members have constructed antenna analyzers. The details of this instrument appeared in the June 2006 edition of AR. Again a lot of interest has been shown in this project and it is likely that it will become a club project some time in the future.

During April the annual get together between the Ballarat Amateur Radio Group and the GRES took place. This year it was their turn to visit us. The talk for the night was given by John VK3LJS on APRS. One of our visitors mentioned that he not only enjoyed the evening but also the continuous supper that was provided. We are all looking forward to

next year when it will be our turn to go to Ballarat.

We had one guest speaker for the quarter, Peter James VK3AWY. Peter is a communications engineer who specializes in the installation and maintenance of long distance HF radio equipment. As many of us are not employed in the communications industry, Peter's talk gave us an insight into what was commercially available and how it is used. Peter also showed us some locally available Codan equipment and for many of us this was the first time we had seen a locally manufactured HF transceiver. Thanks must go to Peter for such an interesting evening.

A decision was made to restore as many of our older valve broadcast

receivers as possible. As many of us had either never worked on valve equipment, or had simply forgotten, Murray VK3ACQ gave us a refresher course. He explained what to look for but the main thrust of his talk was safety. The safety aspect is most important, as we have become used to working only on low voltage solid state equipment. Murray explained that even the simple act of turning a valve radio upside down while still operating can lead to exposure to high voltages which are lethal. So far a number of sets have been restored and more are on the bench.

Visitors to Geelong are invited to attend our regular weekly meetings. These are held at 237a High St Belmont every Thursday evening at 8 pm.

VK7

Justin Giles-Clark, VK7TW

Email: vk7tw@wia.org.au Regional Web Site: reast.asn.au

VK7 RD 2006 Results

Congratulations to all VK7 operators who put in a great showing in the Remembrance Day competition in 2006. VK7GN took out the Open Section with 767 points and Richard VK7ZBX took

out the VHF Single Operator Phone section with 380 points. By the time you read this it will be RD 2007 so, come on VK7, and let us show VK how it is done!

APRS on HF

Brian VK7BW and son Andrew VK7HAW have been travelling through outback Australia and utilising APRS on HF. Regular beacons were heard for most of their trip relaying location information into internet gateways and back out through VHF gateways in VK7, thanks to Scott VK7HSE and Roger VK7ARN.

North West Tasmanian

Amateur Radio Interest Group

NWTARIG has changed its ISP with a new domain of vk7ax.id.au. The club email is still the same: nwtarig@spamex.com. The new club website address is: <http://www.vk7ax.id.au/nwtarig/>. With the new ISP, Tony VK7AX has been trialling video streaming from the internet out on the ATV repeater VK7RNW. Tests have been conducted between Danny VK7HDM in the South and Tony in the NW. This will enable the linkage of the Southern ATV Group and the North West ATV Group in future.



REAST: The chicken kebab production line - our F-Troop getting involved!

VK7

Northern Tasmania Amateur Radio Club

Congratulations to Neil on achieving his full call, which is VK7TTT. There appears to be a blooming of camper vans within NTARC with a meeting looking more like a camping and caravanning show, Hi Hi! The latest is Peter VK7PD, who is sporting a camper van. Tony VK7YBG is looking for volunteers for JOTA in October, contact him on VK7RAA.

Radio and Electronics Association of Southern Tasmania

Congratulations to Thomas VK7FDAE, Tony VK7FACC and Roger VK7FRMH

who have received their call-signs, welcome to the airwaves. REAST has seen an increase in the number of families of amateurs. So, they have decided to introduce a family membership. Only \$10 will get you full membership of REAST and all we ask is that the family member(s) live in the same household as a REAST member. Check the club website for more information.

The ATV experimenters' nights have been very popular with activities including ATV presentations, demonstrations, discussions and we have seen many interstate visitors at the nights. The WAGs (Wednesday Afternoon Group) is going strong with regular technical demonstrations and discussions.

The club now has a 2.4 m C band satellite TV dish which has been donated and installed, with thanks to all involved. This provides yet another piece of equipment to train on and with which to have some fun.

REAST's July presentation night saw our ex-officio butcher Ken VK7DY take us through some butcher's "tricks of the trade" and showed us many things you can do with a leg of lamb, chooks and humble mince meat! The skinless sausages competition was fierce between Denise VK7FDKM, Chris VK7FCDW and the author. The lemongrass seasoned sausages won the night and fortunately Chris brought along some Mylanta for afterwards, Hi Hi!



Very little input from clubs and organisations throughout the state again this month.

The Far North and North Queensland Amateur Radio Get Together (FNNQARG), conducted by the Townsville Amateur Radio Club (TARC), has been and gone for another year and was enjoyed by all who attended. The event, held at the beautiful seaside town of Cardwell over the Queen's Birthday weekend, was well attended by more than 70 amateurs and their XYLs. The weather, dare one say it, even tended to be on the cool side and comments referring to Melbourne and the Antarctic

were common during the Friday and Saturday night proceedings.

Popular FNNQARG sponsors Barry VK4TBD and Lucia Dionysius, proprietors of Navcomm Electronics Equipment, Townsville, had a wonderful display of up to the minute amateur rigs and equipment and many operators were seen to be walking away with boxes under their arms and satisfied smirks on their faces. Assisting Barry and Lucia on the display were Kiyoshi VK3BZX and Masanori VK3CXJ from Yaesu and Takashi VK3FNFY and Peter VK3TQ from ICOM.

Gary VK4WT from Ravenshoe

J R "Rosco" Anderson, VK4AQ demonstrated his trailer mounted, three stage tower and this ingenious piece of engineering received much favourable comment throughout the weekend — as well as providing the platform for an array of antennas into the official communications centre. Details of Gary's antenna may be seen at <http://rdxg.com>

On the Saturday and Sunday nights the customary get-togethers under the "big tent" were well attended, tall stories got taller and black dogs got blacker. The cooler than expected weather did see most revellers tucked up in their beds at a very respectable hour, however. Following an organised boat cruise on Saturday evening many comments were heard about how hard it had been to have eaten all the fresh prawns that were caught. Poor souls.

An enjoyable interlude of the weekend was the unexpected arrival of popular trucking amateurs Dave VK4ZDP and Bill VK4FW and Cheryl in their big rigs. Naturally everyone was interested in having a look at the "office" in both trucks. Whilst most were suitably



The Gathering FNNQARG 2007

VK4



Cricket as it should be played. FNNQARG Cardwell 2007

impressed by the arrangement of radio gear, even more were impressed by the quality living quarters in the cab itself on both rigs.

The dawning of a perfect Sunday morning saw the respective teams from FNQ and NQ becoming more and more nervous as the deadline hour approached for that now famous FNNQARG Cricket Match. Teams were carefully drawn up, warm up and stretching exercises

dutifully done, and the stringent rules of the game very seriously outlined by that most incorruptible of cricketing umpires, Rossco VK4AQ. Something about the severity of penalties for the perpetrator of an errantly hit ball knocking over his stubby. A couple of wonderful highlights of the game saw Dale DMC being awarded the Dummy Spit of the Match Award for his unsportsmanlike behaviour when being dismissed LBW.

The fact that he was at least a couple of metres to the left of the wicket was of little consequence according to the Umpire. Then there was outfielder Dennis JDJ being knocked out of his easy chair by a well aimed ball from John JKL. The classic of all, though, was Kiyoshi VK3BZX, managing to throw his bat further along the pitch than his hit ball actually travelled. It nearly cleaned up the bowler at the other end!

North Queensland ran out overall winners

over FNQ, 122 to 118 runs.

The most valued male player award went to John Gielis VK4JKL whilst Cheryl VK4F??? received an ICOM IC-P7A Handheld for her efforts as most valued female player of the match.

It is worth noting here that Cheryl Goldfinch, XYL of VHF aficionado John VK4FNQ sat for and passed her Foundation Licence the day previously. Congratulations and well done Cheryl. We are all waiting, with bated breath, to see if she is awarded the VK4FRYL callsign if only to be forever known as Feral Cheryl.

Throughout the course of the weekend, John Gielis VK4JKL, President of the Cairns ARC was heard to be shouting "push, push, push" be it during the erection of tents, antennas or moving trailers. One wag suggested that hereinafter he be known as the Gynaecologist.

Following the presentation of awards on Sunday evening, it was decided by those present that we continue to hold FNNQARG at Cardwell in 2008 when it will be the 25th Anniversary of FNNQARG. So ... expect a little extra next year.

The City Of Brisbane Radio Society (VK4WIE)

COBRS are going to Mt. Wolvi for a field day weekend on the 8 and 9th September. SunFest is on, so we hope to have some contacts from visitors.

Mt. Wolvi is east of Gympie on the TinCan Bay road and has excellent VHF/UHF possibilities. The weekend is a social outing for our club and we hope to see a few people drop in. Some from the Darling Downs and Hervey Bay have indicated they will be there.

VK4FUST runs Packet for the Australian Rally

Championship in Queensland. Miles, a member of GCARSI and WICEN, operated packet as an 'F' call legally during the WICEN exercise held in conjunction with the Australian Rally Championship round in Queensland.

Most packet operators have to transmit



Cheryl Goldfinch receives her Best Female on the Field award from Navcomm Townsville proprietor Barry Dionysius VK4TBD. Cricket Umpire Rossco VK4AQ looks on.

News from...

the time taken by a single competitor over a special stage one at a time.

Because the Nambour Super Special Stage ran two cars simultaneously around the Nambour showgrounds, Miles had to transmit two competitors' times as quickly as possible every minute. He was keeping up with the traffic flow until a power supply problem took him off the air. He immediately went to manual mode and just wrote the required information down on paper, whilst calling for assistance on the engineering channel handheld.

When we arrived he pointed out the problem to us. We were able to connect his station to the 4WD battery and get him operational again. He immediately started transmitting the times and scores he had written down and was fully caught up with all times and scores recorded, transmitted and acknowledged before the last car had visited his control.

Miles used an IBM laptop, a Pakrat 232 TNC and an Icom IC-706MkIIIG through a HV7CX for the exercise.

Engineering was through a 70 cm hook-up using VK4WRC's Yaesu VX5.

Miles prepared for the long haul with a low draw lantern and food and drink at his side.

Other Amateur Radio Activities

One of the many outside activities in which Townsville ARC members participate is the provision of communications



Miles – in for the long haul

support for the Twin Cities Autosport Club. An important part of their role is the timely passage of times in hill climb events, in addition to providing additional on-course safety nets. At their most recent event, six members of TARC assisted and it was during this event that enthusiastic newcomer to AR, Ray Schinkel VK4NET was signed off for his CAMS General Official licence and can carry out official's duties at any CAMS motorsport event in the world. Well done Ray.

VK5

Adelaide Hills Amateur Radio Society

The June meeting was another most interesting one, all about Linux. Many of us have heard of Linux but the explanation given by Steff VK5HSX of SCARC was very clear and very helpful. It is likely that a number of members will 'have a play' with Linux now.

AHARS has successfully launched an Assessors Course in VK5, so there will be more qualified people available in the future. This will be conducted on

28/29 July at the Aviation Museum, Port Adelaide.

Don't forget the biggest Buy and Sell is on again this year on 17th November 2007, at the Westbourne Park RSL Hall on Goodwood Road. Doors open for buyers at 0900 and the queue starts to the right! There will be several commercial tables for the latest items, of course. If you wish to have a table please contact Barry, VK5ZBQ. Be there to meet your

The story of repeater pioneer Art Gentry W6MEP.

John VK4JKL has forwarded details of an interesting website relating to the history of repeaters, which I'm sure will be of interest to many of our readers. Many of us take repeaters for granted these days and the article tells it pretty much how it all began. Well worth a read. <http://www2.arrl.org/qst/2004/03/pasterna.pdf>

Christine Taylor VK5CTY

friends and convert their junk into your treasure.

An interesting series of lectures is planned for the next few months, so if you are in Adelaide for the third Thursday of the month, please contact Jim VK5NB, Barry VK5ZBQ or John VK5EMI for more information. Meetings are held in the Belair Community Hall at the top of Old Belair Road and start at 7.30 pm.

ar

A correction

The information about the regular ALARA luncheons in VK6, in the June issue of AR was incorrect and out of date. Sorry ladies!!

First of all, the VK6 lunches are now held regularly at the Bayswater Hotel, on the last Wednesday of the month (except for December). Yes, they were changed last year, but this reporter missed the changes

The VK6 group also had a special Birthday Luncheon on Wednesday June 27th at which they celebrated both ALARA's 32nd Birthday and the 28th Birthday of the VK6 group. In fact this ALARA group was among the first to hold regular luncheons at all. Well done!

The group is also looking for more 'lunchers'. If you are perhaps newly licensed or have just retired so you can make the regular venue, please get in touch with Bev VK6DE or one of the Perth local YLs. They would love to have you join them.

Hope you had a great celebration – hint, hint, maybe you took some photos?

Other Birthday Luncheons

VK5 will hold their Birthday Luncheon on Sunday 28th July at the Marion Hotel. For more information please get in touch with Jean VK5TSX.

This year, Pam VK4PTO is organising an ALARA luncheon through the Gold Coast Radio Club. For more details please contact Pam. Both these ladies are QTHR in the callbook.

If there are any other Birthday Luncheons, please forgive me for not publicising them but have a thoroughly good time, anyway.

Meetings between ALARA members (and other)

Having just enjoyed a two month visit to Europe, I understand better the marvellous friendship we, as amateurs, can develop with people in other countries.

During my time 'over there', I met three ALARA members and a number of other amateurs, all of whom made me very welcome and all of whom made my visits to their countries much more interesting.

There is nothing like local knowledge to help a visitor to see the most interesting places. No guide book is anywhere nearly as good.

In Munich, Maxie DJ4YL (and her sister Marile, who other amateurs in Australia will have met) showed me all round Munich and took me to see the most magical 'fairytale' castle, Neuschwanstein, near Fussen.

Maxie introduced me to Albert DL8FA and Angelika DL3MFP who escorted me around for two days after Maxie had to fulfil an earlier commitment. We spent a day at the site of the 1980 Munich Olympic Games, which is all still very much in use, and a day at the Technological Museum.

In this Museum, and in the one Rajia SM0HNV took me to in Stockholm, there are working amateur radio stations. They are manned by local amateurs on a roster system and are an excellent way to interest the public in our hobby. Is it time we had similar stations in the Museums around Australia, I wonder?

Rajia also knew her local area so well she could show me so much I would have missed on my own, including the marvellous 'village' of Scansen. Situated on a prominent hill, this village has reconstructed houses and workshops from all periods of Sweden's past where people in costume are ready to show you around and explain how some of the old machines worked. Sovereign Hill at Ballarat has a similar format but

Scansen covers a wider period of history and wider range of occupations.

I also spent a most enjoyable day with Ella, in Brighton, England. I had met Ella on a previous visit and at Hamilton when we were both attending the 2000 YL International Meet, so we had much to talk about as we wandered. We saw the astonishing Brighton Pavilion and a number of venues in use for the Brighton Festival and its Fringe Festival.

Wherever I was met by fellow amateurs I was greeted with open arms reminding me yet again how lucky we are to 'meet' such people through our hobby.



Maxie and me at the airport on my arrival,



Rajia in her favourite hollow tree, not far from her home,



Ella and me with the roof of the Brighton Pavilion in the background.

Landmarks for Raija and Maxie

Both these YLs celebrated 50 years in amateur radio this year; Raija passed the mark in April and Maxie in May.

In both cases, it was only in conversation that this information was mentioned, but this is a significant number of years to have been involved in our hobby.

Congratulations to both of you from all in ALARA.

Don't forget the ALARA Contest (or the RD)

August is an important month for all amateurs. The Remembrance Day Contest on 11/12 is our way of recognising and showing our appreciation of the service so many men and women gave in the Second World War. Among these were a large number of amateurs who used their skills to serve their country.

There are also many current amateurs who took up the hobby after the War because they had learned things during their service that led them in this direction.

Let us all participate in the RD, when we work for our states rather than ourselves.

At the end of the month is the ALARA Contest, held over 36 hours so we can use 80 metres twice, as this is the band

best suited to working within Australia at night. Unlike the RD, we can repeat contacts on the same band as long as

there has been an hour since the last contact with the particular station.

The complete rules for both Contests are in the July issue of Amateur Radio, so make sure you have studied them well.

The ALARA Award

To be eligible for the ALARA Award is only necessary to make 10 contacts with YLs as long as at least five states are represented. The ALARA Contest and the Remembrance Day Contest are very good times to obtain the less commonly heard stations to complete your list.

Please send your application to Kathy VK3XBA with the list of stations claimed and \$5 for the certificate.

A busy microphone

Recently four new "F" call YLs got together. They all made calls that day, using the same microphone. It was rather busy!!

Michelle has had her callsign for a while and has joined the ALARA Monday night nets fairly regularly and Jean has been brave enough, but the others have yet to join the net. Maybe soon??



Jean VK3FJYL, Michelle VK3FEAT, Margaret VK3FMAB, and Micheline VK3FMGE

Remember
Remembrance Day Contest
11 and 12 August
ALARA Contest
25 and 26 August

Contest Calendar August – October 2007

Aug	4	QRP Day Contest	CW/SSB/FM/PSK31
	4	TARA Grid Dip	PSK/RTTY
	4	Waitakere (NZART) Sprint	CW
	4/5	10-10 International QSO Party	SSB
	11/12	Remembrance Day Contest	CW/SSB/FM
	25/26	Keymen's Club of Japan Contest	CW
	25/26	ALARA Contest	CW/SSB
Sept	1/2	Russian RTTY WW Contest	RTTY
	1/2	All Asian DX Contest	SSB
	1/2	Region 1 Field Day	SSB
	8/9	Worked All Europe DX Contest	SSB
	15/16	Washington Salmon Run	CW/SSB/Digital
	22	Westlakes Cup	SSB/DSB/AM
	29/30	CQWW RTTY DX Contest	RTTY
Oct	6	PSK31 Rumble	Digital
	6/7	Oceania DX Contest	SSB
	7	RSGB 21/28 MHz	CW & SSB
	10	10-10 International Day Sprint	All
	13/14	Oceania DX Contest	CW
	20/21	JARTS WW RTTY	RTTY
	21	Asia-Pacific Sprint	CW
	27/28	CQ WW DX Contest	SSB

Welcome to this month's Contest Column.

Remote Contesting

The title of remote contesting could easily generate thoughts of the operation of a station located away from the general populace, possibly with a temporary set-up for equipment and indeed for the operator.

However, the title can be skewed somewhat when technology is taken into account, as there is a growing trend towards the remote operation of radio equipment via the Internet. This approach is still in its relative infancy, but quite a number of stations are currently on the air today which feature no local operator at all. Station hardware already exists within exotic locations with data linkage back to another part of the world where the operator is located, for both general use and sometimes for contesting activities. Ten Tec's latest HF radio incorporates an Ethernet

connection for this very purpose so they, at least, must perceive a viable market for the facility.

Technical limitations of yesteryear such as data and signal latency, have generally been overcome by broadband Internet linkage and the increased computing capabilities of modern PCs. Linkage is achieved by a number of means, but is usually provided by RF hardware suitably equipped with data connectivity, linked via the Internet to an alternative location equipped with suitable computing and software facilities to enable the two-way passing of transmit and receive audio along with control signals for the rig.

It's expensive and complex, so why bother?

So, why would an operator want to bother with the expense and effort to provide such facilities? With planning applications for antenna systems becoming ever more difficult to obtain due to neighbour objections and the

public's overall suspicion of the word 'radiation' being associated with amateur radio transmissions (even if it is non-ionising) often due to media coverage of mobile telephone masts and perceived health issues, it's not too surprising to find the suburban radio amateur turning towards alternatives to provide a working station from which to operate. For others however, remote sites in "RF quiet" locations with room for large antenna systems, particularly when located in "favoured" locations outside the state/country of the operator, are a significant advantage compared to the 'normal' operator who must put up with limitations such as an apartment or locally generated electrical noise.

But for contesting, is it cheating?

The current technology imposes a bit of a handicap on remote operation due to some remaining latency (time

delay) issues but that penalty will continue to narrow quickly over time. If an operator is located in Sydney but the transmitting hardware is located in Perth, a VK6 identifier would be required as the RF is emitted from a VK6 locality. However, what about the case of the operator being located in Sydney and the remote facility being located in Perth, but no RF emitted from Perth as it is only used for listening purposes? A VK2 prefix would be used as the transmitting equipment is located in VK2, but a significant advantage could be obtained with a listening facility located closer to a continent of interest. Theoretically, the listening hardware could be located anywhere in the world and would clearly be an advantage under certain circumstances such as marginal band conditions in VK2 whilst the band is lively in the receiver location. Propagation would still be required to allow the transmitted signal to get to the distant station, but this surely is possible on occasion?

Contesters have always looked to push the envelope and gain an advantage within the remit of the rules, using whatever resource and guile they possess. Contesting is a technical sport involving a combination of technology and operators striving to use technology in the cleverest way possible to get that edge over the competition. However, there is the problem of where do we draw the line while trying to preserve some spirit of yesteryear but also look forward to new ways of possibly enhancing contesting by adopting new technologies. Should there be a separate category for remote stations, for example? Maybe, a 'Remote' category for stations utilising the overall facility but transmitting and receiving from the same geographical location but linking the audio etc to another location, but also a 'Distributed' category for stations using multiple receive facilities?

Some contests already try to accommodate these aspects. Some rules already exist for various contests, requiring all station hardware to be within a 500 m radius in an attempt to limit the remote receive perceived



Jessica VK2FJES with her well deserved prize!

advantage, but this is often aimed at the RF side of things as opposed to limiting the extent of the 'control wires' as would be the case for Internet linkage. Do we really care if the operator is sitting right in front of the rig? Are you working the operator, or the callsign denoting the RF emitting location? What do you claim for an award such as DXCC, for example? Is this just the same type of QSO as via a repeater, but utilizing the Internet instead?

The introduction of a separate category for remote operation implies an advantage by operating in this manner – but is this true? An operator must deal with many more technical issues than a single point station and even if the issues are dealt with successfully, you still cannot do all the things you can in a traditional station. Even over the best low latency connections, timing your calls in a pileup is more difficult and there is less information available for decision making. Station design and maintenance takes more time and effort, there are more things to go wrong and many of the failure modes, even if recognised immediately, take much

longer to fix, resulting in more lost time or an early end to the contest.

There also seems to be an emotional component in some of the opposition to remote operations in a similar vein to the SO2R issue. "I have always done it SO1R, I don't want to learn SO2R, so nobody else should be allowed to either" for the SO2R issue becomes "I can set up a normal station, I have no need for remote operation, so nobody else should be allowed to do it either" for the remote issue.

At the other end of the scale, if you used a cordless headset are you breaking the 'traditional' rules by not being directly attached to the station equipment? For that matter, what about using a PC to send CW? What is the difference between sitting 1 m away from your rig, or 100 m away over extended wires for headphones etc, or 10 km or more away using

the Internet?

Is there a valid argument to the effect that if we are to at least try to keep the Internet from further eroding interest in amateur radio and the many facets within, we must be able to adapt to the times?

Remote operation is already a reality, so I suspect that contesters will just have to learn to gain the most benefit out of it and learn how to incorporate it into our technology limits and contesting traditions. As long as the callsign used reflects the RF emitting location, then this approach seems reasonable enough. The remote location of receiving equipment could be another aspect altogether of course! It'll be interesting to see how things shape up on this aspect. Time will tell.

Westlakes Cup

The Westlakes Club is running the Westlakes Cup contest again this year, on the 22nd September on 80 m. The rules for this contest appear elsewhere within this edition of AR. Jessica VK2FJES (see photo) pays the price for winning in 2006

by becoming one of the bonus stations in 2007. Vince VK7VH is also a bonus station, each contactable every half an hour if you can find them!

To finish, a few more questions.....

This column has had much focus in recent times on promoting contesting and attempting to increase participation. My column scribe predecessor, Ian Gossil, had put a great deal of time and effort into this aspect and in my view, is to be applauded for his sterling efforts.

It is my intention to continue to promote contesting in an attempt at bolstering participation, as the competitive nature and spirit seen in Australia for cricket, football, tennis etc simply does not seem to currently feature in radio to the same extent.

Amateur radio as a hobby contains a myriad of specialist 'sub sections' such as DFing; WICEN; SSTV; RTTY; contesting and home-brewing equipment, to name but a few. Is interest simply spread too thin and the resultant level of participation not a sign of 'trouble/problems' but merely a result of the overall numbers of amateurs and the range of available activities?

The WIA continues to attract members to its ranks – the more the merrier – but AR magazine is mainly devoured by WIA members, with a smaller proportion being sold via the newsagents' shelves.

With such a comparatively small audience, are we ever likely to see a step-change in participation? If we managed to attract a proportion of 'new' calls to contesting, is it really likely to be such a huge impact on the bands? I'd certainly like to think so, but time will tell! Plans

are afoot for an alternative domestic contest with an 'F' call slant, so maybe this will encourage a few newcomers to have a go.

What is it that motivates YOU to participate in contests? Are you reading this column from a passing interest or curiosity, or have you been contesting for some time and are now a seasoned contest operator? Is it simply to win; or just to participate; or beat your last score; or beat a fellow ham who has always beaten you previously? Maybe it's some other reason such as increased band activity during contests allowing your DXCC / IOTA award tally to be augmented; improving CW skills; or simply to test a new antenna arrangement?

So, what gets your blood racing and drives you to participate in contesting? If you have any contest related material for inclusion within the column, topics that you'd like covered or even some experiences and pictures you'd like to share, then please feel free to get in touch via vk2baa@wia.org.au. See you on the bands.

73 de VK2BAA Phil Smeaton

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Westlakes Cup

Date: Saturday 22nd September 2007
Time: 2030 EST (1030 Z) till 2130 EST (1130 Z)

Band: 3.535 - 3.620 MHz

Mode: SSB, DSB, AM

Max Power Limit:

100 Watts Standard and Advanced Licence Holders

10 Watts Foundation Licence Holders.

Rules:

All Stations shall call 'CQ Westlakes Cup'.

Exchange for Points shall be the operator's name and a signal report.

After the contact is made and reports exchanged the station that had called 'CQ' must QSY at least 5 kHz from the frequency before calling again. There will be no 'sitting' on a frequency and working a 'pile up'.

You must QSY after each contact is made.

Valid Contacts:

Only VK or Special Prefix (AX, VI) Australian stations may be worked. The Contest may expand to ZL, P2 and other South Pacific neighbours in the future.

Points A:

There will be two BONUS stations operating in the Contest.

The BONUS stations are the stations that hold the Cup from the previous years Contest.

The stations that are the BONUS stations will be worth 1 (one point) for the QSO plus 3 (three) bonus points and may be worked twice in the Contest, once every half hour, if you can find the mischievous little devils.

This year, (2007) the BONUS stations will be VK7VH/BONUS and VK2FJES/BONUS.

Points B:

Amateur Radio Clubs and WIA affiliated stations are encouraged to take part.

Every Amateur Radio Club that takes part in the Contest shall be worth 1 (one point) for the QSO plus 1 (one bonus point).

Every Amateur Radio Club taking part shall sign with the call eg. VK2-/-CLUB. WIA station calls such as VK2WI, VK4WIT, VK2BWI etc. shall qualify under the same scoring system as Amateur Radio Clubs and must identify themselves with a /CLUB after the Call sign eg. VK3WIA/CLUB.

Amateur Radio Club stations and WIA Club Stations may be worked only once in the Contest hour.

Points C:

Every station that does not fall into the BONUS categories listed above shall be worth 1 (one point) per QSO and shall be worked only once during the Contest.

Points D SWLs:

SWLs shall be able to claim the same points as per transmitting stations. For example if an SWL hears a BONUS station they may claim 1 point plus 3 Bonus points. If they hear a Radio Club or WIA Club Station they can claim 1 (one point) for the QSO plus 1 (one Bonus point).

They must record the callsign and information of both stations in the QSO.

Contest Procedure:

At 15:00 EST (10:15 Z) on 3.585 MHz +- QRM, the BONUS station shall make an announcement outlining the basic rules of the Contest.

For 2007, the station making the announcement will be VK7VH. At the end of the basic outlining of the rules of the Contest, VK7VH may pass the microphone to VK2FJES to issue a word of encouragement and greeting to Contest participants.

If there are any last minute questions to be asked then questions will be answered at this stage.

At 2 (two minutes) prior to the beginning of the Contest, the BONUS station shall make an announcement to the effect that the Contest shall begin in 2 (two) minutes.

At the completion of the Contest, the BONUS station shall call in all stations that wish to declare their scores for the Contest.

If, for any reason the BONUS station cannot perform these functions, the Westlakes Amateur Radio Club Contest Manager or a Deputy will do the job.

The call-in shall be on 3.585 MHz +- QRM and shall start from the lowest scoring stations, eg 10 pts, up to the top scorers in the Contest.

During this process, additional stations may be seconded from the group on frequency to take call backs from any region which the BONUS station thinks his signal may not be covering well. Such station/s may receive a special certificate in recognition of their efforts.

The object of this 'Check In' after the Contest is that stations may get an 'idea' of the Contest results on the same night as the Contest takes place, although confirmed places will only be made known after the 'Contest Manager' has received and checked the logs.

Contest Logs:

An Excellent Logging Programme has been produced by Mike VK3AVV and is available by typing VKCL into your Google Search Engine and follow the prompts in the VK Contest Logger. Thanks Mike.

Logs submitted in other formats shall contain the following information:

Cover Sheet:

Call Sign.

Name of Licensee.

Address of Licensee.

Email Address of Licensee: (optional)

Points Claimed including BONUS Points

Log Details:

Time: Local or 'Z'

Call Worked.

Signal Strength of station worked and name of operator.

Signal Strength given to station worked.

Declaration:

I declare that I have operated in accordance with the rules and spirit of the Contest and in compliance with my licence conditions.

Awards:

An inscribed Cup shall be awarded to the stations with the highest Points Scores attained, one in the Advanced and Standard Licence Category (100 Watts) and one in the Foundation Licence Category (10 Watts). The Cups shall be inscribed with the Callsign name and details of the highest points scorer and shall be retained by the Contest Winners.

The stations that gain possession of the Cups shall become the BONUS stations for the following year's Contest. The Contest Manager retains the right to decide to change the rules of the next year's Contest.

Certificates shall be awarded to the first, second and third place getters in each section (Advanced/Standard, Foundation and SWL) of the Contest.

Additional Certificates may be issued to those who, in the opinion of the Contest Manager of Westlakes Amateur Radio Club, have contributed, maintained or attained prominence in any particular area of expertise or excellence in the Contest.

Logs:

Logs should be sent to:

The Contest Manager
Westlakes Amateur Radio Club
PO Box 3001
TERALBA NSW 2284

Logs via Internet may be sent to the following E-Mail Address:
contestmanager@westlakesarc.org.au

The closing date for the receipt of logs will be midnight EST on 31st October 2007.

Results can be expected to be processed and posted on the Westlakes Amateur Radio Club Website and distributed to WIA News outlets within one week of the closing date for entries.

The Contest Manager's decisions with regard to logs and positions in the Contest shall be final and no correspondence shall be entered into regarding the results.

Good Luck to you all.

Best Regards

Richard, Contest Manager
Westlakes Amateur Radio Club

The big news is that Vladimir Bykov UA4WHX, who has been QRV during June from the very rare entity Rwanda as 9X0VB. Rwanda has not been activated since late 1997. It ranks #33 on DX Magazine's "2006 Most Wanted Survey". In Europe it is #58, in Asia #14, in North America it is #29 and the rest of the world #36. The Daily DX reports that they have received word that Vladimir is in Kigali and will "probably be around here for a while". The QSL route, as always, is via UA4WHX, but wait until he gets home before sending your QSLs. Vladimir says he is operating from "the house of the regulator", a Colonel from the Rwandan Defence Ministry. He is Diogene Mudenge 9X1AA, and is "trying to put together an Amateur Radio society in Rwanda. I wonder if this will spark off some more activity from this area? Yes, EA5RM just announced that a multi-national team is planning an operation sometime later this year.

I quote the following from an e-mail received from Lindsay VK3WM:

"I would like to bring to your readers' attention the ANZA DX net, which is the longest running radio net in the world that started in 1939. The full title is Australian New Zealand Africa DX net, which operates 6 days a week on 14.183 MHz, at 0515 Z, with a different net controller each day. There is no 20 m net on Tuesdays. There is one 15 m net on Saturday at 0500 Z. (Lindsay does not give the frequency). Controllers are Bill VK4UA, John VK4LJ, Myrle ZL2MJC, Russ K7LINA, Lindsay VK3WM, and Morris ZL1ANF."

The International Telecommunications Union (ITU) bulletin #885, dated 1 June 2007, reports "On the occasion of the 10th anniversary of Hong Kong's reunification with China, the Administration of Hong Kong (Special Administrative Region of China) authorizes amateur stations to use the special call sign prefix VR10 in replacement of VR2 from 1 July 2007 to 30 June 2008."

The U.S. Department of Commerce, NOAA, Space Environment Center (SEC) has released their latest prediction on the cycle minimum. For the third month in a row they are predicting the bottom as July 2007 with a predicted solar flux average of 75.2. The complete

chart is at <http://www.sec.noaa.gov/fldir/weekly/Predict.txt>. The values are based on ISES cycle 23 forecasts of 13-month running smoothed values.

The 2006 DXCC Yearbook should be posted mid July. To receive the free publication you must either be current on the DXCC Honour Roll during 2006 or have made at least one submission to DXCC during the calendar year 2006.

3B7 The 3B6SP team en route to Agalega encountered serious problems with the catamaran "Josephina", which lost one engine and a sail. All on board were safe, and the catamaran was towed by fishing vessel "Covadis", to Raphael Island, Saint Brandon (AF-015). They stayed on the island and operated as 3B7SP while the craft was repaired.

9A & T9 Once again Zik VE3ZIK (<http://www.qsl.net/de/ve3zik>) will be active as 9A/VE3ZIK from Bilice, Croatia between 16th June and 5th September. He plans to operate CW, SSB, RTTY, PSK31 and FM on the HF bands, and to participate in the IOTA Contest. He might also operate as T9/VE3ZIK from Bosnia & Herzegovina on 20-27 June and again on 5-10 September. QSL via DL3PS, direct or through the DARC bureau (e-mail requests for bureau cards can be sent to zik@tiscali.de).

9U0 Sigi Presch DL7DF has announced plans for a multi-op team going to Burundi from September 26 to October 9, 2007. The group will use the call 9U0A. Activity is expected on 6 through 160 metres on CW, SSB, RTTY, PSK31 and SSTV. The experienced crew will include Manfred DK1BT, Wolf DL4WK, Sigi DL7DF, Jan DL7UFN, Frank DL7UFR and Leszek SP3DOI. The team will emphasize the low bands. For equipment, they will have four transceivers (two K2's, an IC-706 and an IC-7000) and three TY900K-W amplifiers. The antennas will include a Titanex V80E, 18 metre low band vertical, a four square on 30 and 40 metres, two hexbeams for 10-20 metres, a five element Yagi for 6 metres and several beverages for the low bands. Plans are to have on-line logs, which are expected to be updated during the DXpedition. The pilot station for this operation will be Bernd DF3CB (bernd@df3cb.com).

QSL via DL7DF either direct or via the bureau. Direct QSLs can be sent to Sigi Presch, Wilhelmsmuehlenweg 123, D-12621 Berlin, Germany. Direct requests should send SAE and one IRC or two US\$ for outside of Europe and one IRC or one US\$ for mail within Europe. Check out their Web page at <http://www.dl7df.com/9u/>.

3D2AG Tony has postponed his trip to Rotuma, 3D2/R, later this year. Once he gets there, he plans a two-month stay.

SV2ASP/A Father Apollo, was quite active on the bands in May, when he made 1,500+ CW, SSB and RTTY QSOs. He is receiving cards for CW QSOs made between 2300 UTC on 16 May and 0200 UTC on the 17th. Note that at that time he was operating phone, and his call sign was pirated. Father Apollo is very busy, and he does not foresee any further activity for a while.

EA6 Look for EA8TL/EA6 to be QRV from July 31st to August 24th. He'll be on from Ibiza. Activity will be on 2, 10, 12, 15, 17, 20, 40 and 80 metres SSB. His rig will be an IC-706MKIIG running 100 watts on HF and 50 watts on VHF.

KL7 Lanny W5BOS, will operate from two islands in Alaska between August 2nd and 7th. The first will be a new one, Semidi Islands (NA-235/P) using the call W5BOS/KL7. All of the Semidi Islands and associated rocks are part of the National Wilderness Preservation System and as designated Wilderness are closed to mechanical equipment such as generators. This operation will be battery power only. The second operation will be from Unavikshak Island (NA-238) using the call W5BOS/AL0. This island was activated last year but conditions were very poor and Lanny wants to give those that missed it another chance. This will be his final operations from Alaska. QSL both operations via N6AWD.

Happy DXing.
Special thanks to the authors of *The Daily DX* (W3UR) -- 425 DX News (11JQJ) for information appearing in this month's DX News & Views

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WIA DXCC Standings, 30th June 2007

Calisign Countries DXCC Ex. (337)

Phone

VK5WO	337/370
VK6LK	337/362
VK3QI	337/351
VK3SX	337/343
VK3DYL	337/343
VK2FGI	337/343

Honour Roll (328) Phone

VK6HD	336/362
VK7YP	336/341
VK5MS	335/369
VK4LC	335/362
VE6VK	335/372
VK4UA	335/370
VK3AMK	335/354
VK6NE	335/351
VK3AKK	335/348
VK3EW	335/341
VK2AVZ	333/344
VK1ZL	333/339
VK2DEJ	333/339
VK6APK	333/338
VK3TZ	332/336
CT1EEN	332/336
VK3OT	331/345
VK4AAR	331/335
VK3EJZ	329/330

General listing

Phone

VK3YJ	327/333
VK6ABS	327/000
VK5FV	326/329
VK4SJ	326/327
VK2UK	323/328
VK4LV	320/322
VK1TX	319/000
VK6LC	317/319
VK2HV	317/000
VK6RO	313/320
DL2AWG	309/000
PY2DBU	308/315
VK4ICU	303/305
VK4EJ	302/304
VK3PA	298/299
9V1RH	297/303
VK6DY	297/301
JA3EY	296/300
VK3KE	296/299
DL1TC	294/295
VK4AN	293/300
VK2CA	293/000
VK3DU	292/301
VK2CSZ	290/293

VK4BAY	287/290
VK7TS	285/286
VK3JMB	285/000
VK6ANC	283/287
VK3UY	264/266
JA7MGP	260/000
VK2XH	257/000
DL3ASJ	256/000
VK8NSB	255/000
VK3CIM	254/258
VK8DK	253/254
VK6DU	249/252
VK2FHN	246/000
VK4AO	240/000
VK2AU	235/000
VR2XMT	235/000
VK4DMP	227/228
DL6MRS	226/000
UA6LDD	225/226
VK3DDT	206/209
VK1TZ	201/204
VK7JAB	198/000
VK2EO	195/000
VK2EJK	176/000
9A2KL	172/175
VK6EH	170/000
VK2BQS	166/169
DL9UBF	165/000
DL6USA	162/000
VK5EMI	160/000
VK7LUV	160/000
SV1EOS	157/000
JA6KTY	156/000
VK6HZ	151/000
VK2SPS	143/145
VK2QV	141/000
VK3JXO	141/000
VK3DQ	138/152
VK8LC	138/000
OK1ZSV	136/000
VK4FNQ	134/000
SV1XV	130/131
WA5UA	128/000
VK4VIS	127/129
VK5ATU	126/128
CU3AAT	125/000
SV1UT	123/000
VK2VZQ	122/000
VK4EZ	119/125
VK5UO	112/115
VK3CML	109/000
XV2LC	109/000
VK9RS	107/000
VK6ISL	106/000
AX4EJ	105/000
VK2RO	103/105
SV1FTY	102/000

SV1GYG	102/000
HS1NGR	101/000
VK5JAZ	100/000
VK6ZAI	100/000

DXCC Ex. (337)

CW

Position Vacant

Honour Roll (328) CW

VK6HD	336/357
VK3QI	336/348
VK5WO	335/351
VE6VK	330/357

General listing

CW

VK6RZ	324/329
VK3AKK	312/317
VK4XA	306/333
VK4LV	301/308
9V1RH	297/303
CT1EEN	294/000
VK6AJ	292/304
VK4ICU	291/000
VK4AN	288/294
VK2CWS	245/247
VK3DQ	243/270
VK3CIM	235/236
RD3AF	233/000
VK7TS	219/000
VK3KE	219/000
VK6RO	216/218
DL7PA	203/000
VK2GR	181/188
PY2DBU	181/183
VK4CXQ	174/000
VK5UO	171/172
SP9ADV	168/171
DK6AP	168/000
DL6USA	165/000
VK4UA	151/184
VK4AAR	145/147
VK4DC	142/000
VK2AR	140/143
DL1TC	133/000
DL6UGF	128/000
VK6DU	125/127
DJ4BG	121/000
VK5BWW	110/113
T94VT	108/000
9A2KL	103/000
DL3GDS	102/000

DXCC Ex. (337)

Open

VK5WO	337/374
VK6HD	337/364

VK3QI	337/352
VK3SX	337/343

Honour Roll (328) Open

VK4LC	335/382
VE6VK	335/380
VK4UA	335/372
VK3AMK	335/354
VK3AKK	335/348
VK3EW	335/341
VK3OT	334/348
VK2AVZ	333/344
CT1EEN	333/337
VK4AAR	333/337
VK3UY	333/336
VK6RZ	330/336
PY2DBU	328/343

General listing

Open

VK6RO	327/334
VK4LV	325/333
VK2UK	323/328
VK2HV	319/000
VK6LC	318/320
VK4DV	318/331
VK4AN	314/322
VK4ICU	311/313
DL1TC	302/303
VK3KE	301/304
VK3PA	298/299
VK7TS	295/296
PY2DBU	294/298
VK3JMB	288/000
VK6ANC	285/289
VK3CIM	284/288
9A2KL	280/283
UA6LDD	279/280
VK6DU	277/280
VK6MK	256/259
VK8NSB	256/000
VK3DQ	255/284
VK5UO	251/255
VK2CWS	251/253
VK2FHN	249/000
DL9UBF	206/208
DL6USA	201/000
SP9ADV	200/203
VK2GR	184/191
VK2BQS	183/186
VK4CXQ	179/000
VK4DC	168/000
DL6UGF	161/000
SV1EOS	161/000
VK5ATU	158/160
VK2AR	156/159
VK3VB	153/155

VK6HZ	151/000
VK3JXO	146/000
VK2SPS	144/145
SV1XV	142/144
VK4EZ	140/147
ON5SPA	127/000
VK2WL	124/126
VK7CQ	123/125
VK5DC	117/118
NOMSB	117/000
VK9RS	111/000
VK2AJE	109/000
UA0IGV	103/000
VK2AWD	102/106
VK5CO	100/106
VK5GX	100/101
DL1APX	100/000
RA3BZ	100/000
VK1AI	100/000

General listing

Data

VK3EBP	253/255
VK3KE	202/000
VK3AMK	200/202
VK2BQS	126/128
VK4AN	133/000
DL4ARJ	120/000
ON5SPA	111/000
CT1EEN	110/000
VK5RY	100/102

Gen-listing 6 m.

Open

VR2XMT	154/000
VK4FNQ	141/000
CT1EEN	110/000
VK4ABW	109/000
VK6JQ	103/104
VK4CXQ	101/000

Gen-listing

Satellite

VR2XMT	112/114
VK3XDQ	106/000

Gen-listing 2 m.

Open

Position Vacant

General listing

SWL

DE2DAD	100/000
VR2XMT	154/000
VK4FNQ	141/000
CT1EEN	110/000
VK4ABW	109/000
VK6JQ	103/104
VK4CXQ	101/000

Spotlight on SWLing

Robin L. Harwood VK7RH

I have not been able to do any real monitoring lately because of persistent winter ills. These have laid me low and fighting off recurring bronchitis. Hopefully, with spring just around the corner, I will get back into the swing of things once more. I do, however, miss the facility of being able to remotely tune over the internet, since the demise of DXtuners. There seems to be no replacement although there are a handful of online receivers but they mainly consist of 30-second packages of compressed audio.

The Hungarian external services did indeed cease on 30th June but they did not leave shortwave because they are relaying domestic programming plus Hungarian broadcasts from Vatican Radio. Also it appears that Iceland may also have ceased shortwave broadcasts for Atlantic fishing fleets. These were usually just outside of the 13-metre broadcasting allocation and were technically classed as being a utility

station because they were on USB. They are supposed to broadcast to Australia from 1100-1200 on 21590 using a 250 kW sender and from 1800-1900 on 11795 and 1800-2200 on 3975 to Western Europe

The US Congress recently voted to fund broadcasts to Venezuela, following the forcible closure of a private television network and pressure on the remaining radio and television networks to be nationalised by the Chavez Government. It has not commenced yet and may be very similar to the existing anti-Castro Radio Marti which has been on since 1959-60.

The television station that was forcibly closed simply went online and apparently Venezuelans can download news and comment from YouTube.

Radio Marti can often be heard on 6030 in our local evenings but the channel is clear on Mondays, allowing other signals to occasionally sneak

through the persistent Cuban jamming. Incidentally, the constant jamming on 6015 is actually in North Korea

Jerusalem continues to be on shortwave in English but there has been talk that these broadcasts may be merged with Israeli television and separated from the domestic radio networks.

Kuwait apparently has reappeared on shortwave in English. It usually is on at 0500 on 15105.

Radio HCJB in Pifo may be leaving shortwave very soon. The transmitting site is to be demolished to make way for the new Quito International airport. Shortwave programming will continue from various VT Merlin senders in Europe. Although the senders in Kununurra WA identify as HCJB Australia, it really is a separate station from HCJB in Quito.

Well that is all for this month. If you have any news please email me at vk7rh@wia.org.au

Awards

WIA MultiBand DXCC Program 30th June 2007

Callsign	2 m	6 m	10 m	12 m	15 m	17 m	20 m	30 m	40 m	80 m	160 m	Bands	Total
VK6HD			304	261	322	307	332	308	331	315	243	9	2723
VK3QI			292	279	305	294	335	308	297	244	115	9	2469
VK3EW			278	231	304	254	328	137	292	284	106	9	2214
CT1EEN		110	294	290	324	305	328	146	243	163		9	2203
VK5WO			155		153	106	254	109	225	134		7	1136
VK3PA			135		145		269	109	178	230		6	1066
PY2DBU			199	125	187	104	276	102				6	993
VK6LC			121		153		307		191	144		5	916
UA6LDD			189		190		191		189	148		5	907
VK2CA			165	102	207	116	214					5	804
9Y1RH				149	173	139	154		137			5	752
VK4AN			220		238		287					3	745
VK3KE			115		178		290		104			4	687
VR2XMT		154			127	162	172					4	615
VK3DYL			114		168		296					3	578
VK2DEJ					114		305		101			3	520
WA5UA			102		106		128					3	336

Please note: From 1st May 2007, our Awards Program is now 100% National WIA and we offer 23 all new awards. At this period, for the long term future, the awards program is now under review by the WIA Board. Review results will be published soon.

If your callsign is not listed, it means you have not updated in the last 5 years. To re-join the WIA DXCC program a complete new DXCC submission is required.

The next closing date for DXCC Standings is the 31st December 2007.

Awards information and down loadable files are available on our WIA website <http://www.wia.org.au/awards/> or email to: awards@wia.org.au

WIA Awards Manager, P.O. Box 196, Cannington, Western Australia 6987.

Mal. VK6LC

VHF/UHF – an expanding world

David Smith VK3HZ
vk3hz@wia.org.au

Weak Signal

David Smith - VK3HZ

There has been little of note reported this month regarding propagation on the bands. It is winter and a good time to stay inside in the warmth, or in the workshop fashioning some new device in preparation for the coming season.

GippsTech 2007

The winter lull – a good time for a technical conference and get-together, and what better than GippsTech.

The 2007 conference was run once again in Churchill over the weekend of July 7-8 and attracted over 100 attendees. Peter VK3KAI, together with the organising team from the Eastern Zone Amateur Radio Club, ensured the event ran smoothly from start to finish. The venue, provided by Monash University, and the catering, provided by the local Lions Club, were, as usual, first class. Robbie VK3EK ably piloted the Courtesy Bus, transporting people to and from their motels and then, during the day, occupying the "other halves" with tours of the local district.

Of course, there would not be a conference without the generous contributions of those who gave presentations. The general theme on Saturday was Propagation with a number of other topics as varied as Bandpass Filters and the use of Automotive Alternators for Field Day Power. On Sunday, Microwave and EME were the main subjects. During the breaks, people migrated to another area where there were several stalls selling RF and microwave items, giveaway tables and displays of numerous construction projects. At the end of proceedings, there was a monster raffle, with major prizes being a Power/SWR meter, 23 cm Power Amplifier and a nice bottle of Port (thanks!).

The other aspect to such an event is the chance to get together with those you have spoken to many times, but perhaps never met (it is rare that image of someone in the "mind's eye" matches the reality). On Friday evening, an informal get-together at the local pub

provided the first opportunity to catch up. Then the Saturday night dinner was the scene of many a story over a glass of your favourite – progressing well into the night for a few who were rather bleary-eyed on the Sunday. Then it was Sunday afternoon and everyone was on their way home again – over all too quickly.

So, get out your diary and mark the weekend of July 5-6, 2008 for GippsTech 2008 – not to be missed.

Beacons

Recently, there was unfortunate news from Mark VK5AVQ that the VK5VF beacons in Adelaide have been taken off-air.

On Saturday 23 June, the VK5 VHF/UHF beacons VK5VF fell silent, after some 44 years of operation from their Mt Lofty broadcasting site. The 52.450 MHz, 144.450 MHz, 432.450 MHz and 145.650 MHz Morse transmitters were switched off at 0215 UTC and the equipment removed at the request of the national owners of the site. The 1296.450 MHz beacon has not been on air recently.

The beacons have been a reliable signal source across southern Australia since their commissioning in June 1963. Many times, they provided early warning for both ends for contacts across the Bight from VK3 to VK6. The only significant down time was following the 1983 Ash Wednesday fires.

Hopefully another suitable site will be found soon, but the current one will be a hard act to follow. For sometime now, the people involved have been looking for a new location for the Microwave beacons as all the trees have now grown back after Ash Wednesday giving poor take off to the East and South East. One of the positives from all the publicity resulting from the shutdown is that a number of opportunities have surfaced for the relocation.

Thanks to VK5ACE, VK5KK and VK5KDK and the many others who have supported the project.

EME

You will see in the Digital DX Modes section that Rex VK7MO has been recently dabbling with EME on the 2.3 GHz band. What modesty has prevented him from saying is that this is the first VK EME contact on 2.3/2.4 GHz. Congratulations Rex.

Doug VK3UM reports some entertaining times recently on EME:

For the DUBUS 2007 432 MHz CW Contest, I was unfortunately unable to stay for my North American window on Saturday 24th March due to extremely high winds (> 80 kmh) that came with a cold front just after I commenced operating. I had a nervous 20 minutes or so attempting to raise the dish to the parked (bird bath) position as the wind was even too strong for the two 12 ton hydraulic rams to get it past the 30 degree mark. The noise of the wind roaring through the mesh was quite alarming but the dish survival was theoretically never in doubt as the construction is designed for 125 mph (just over 200 kmh), but one never wishes to prove the point!

The conditions were the worst I have experienced for a very long time. Polarity was changing rapidly and over a wide range, deep fading was evident for the whole period as well. On top of all that, Libration was most significant as well. It required considerable patience with the smaller stations to wait until polarisation and QSB combined favourably. There always is a threshold where signals above 4 Yagis and 1 kW, for me, are normally easy to work, even under such conditions but those below that EIRP pose a challenge with my installation. I learnt later from Peter SM2CEW that there was considerable Auroral activity ... that came as no surprise! I did not get the opportunity to measure Sun noise but I would expect it to have been quite elevated.

I regretfully have to make mention that the lack of activity from NA (in my single window) was the worst I have seen in

>20 years. Two USA stations was a little disappointing.

As usual the operating procedure and patience shown by all the operators I worked was just exemplary. And that is what I enjoy most about this mode of EME, the total random nature of all QSO's, and the technical challenge of physically making the QSOs under adverse conditions with no outside electronic help. There was only one caller I failed to drag from the noise despite their persistence.

Final result was 30 QSOs with 27 multipliers - Claimed Total Score 81,000.

Conclusion: still very strong but US active stations diminished significantly.

Lovell Telescope Festivities

This year, the University of Manchester's Lovell Telescope is celebrating its 50th anniversary with a number of weekend festivals at the times of significant events in 1957. Details of some of the activities can be found at www.jb.man.ac.uk/public/im/eme.html

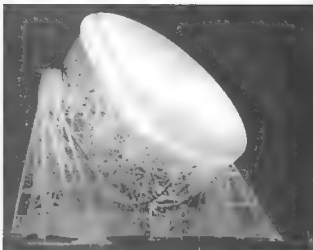
Over the weekend of June 16th/17th - to celebrate the first move of the telescope - the festival organisers decided to have a literary theme, sending poems to the Moon and back. However, the Observatory's policy is to be totally radio quiet, so it could only be used

for the reception. Even with a 76 m antenna, it would take a fairly substantial station at the other end to allow SSB transmissions at a frequency at which the telescope could be easily equipped.

There was already a good feed system at 408 MHz which it was felt could be tuned up to 432 MHz. As 432 MHz seemed to be quite widely used by EME enthusiasts this seemed the obvious band to choose.

Doug VK3UM was one of the stations involved in the activities. The following was reported by Ian G0DMU onsite at the radio telescope:

I was at Jodrell early on the 17th June to receive the call from Doug McArthur (VK3UM), who is celebrating his 50th year as a radio amateur, located 10 km north of Glenburn, Victoria, Australia. I believe that the Moon as seen from there was only 3 or so degrees above the horizon. Doug was using a 8.3 m Dish with 1500 watts Tx power, so it was



EME to the Lovell Telescope

not surprising that his CW was strong and I had no difficulty in resolving his SSB signals when his Australian accent became obvious! He sent messages of congratulations several times - not all identical but this is a meld of them:

CQ CQ GB50EME Lovell Telescope Manchester de VK3UM Victoria Australia. This is Australia calling.

Congratulations on the 50th anniversary of the Lovell Telescope. We wish you many more years of further operation. 73's Doug VK3UM

Please send any Weak Signal reports to David VK3HZ at vk3hz@wia.org.au

Digital DX Modes

Rex Moncur - VK7MO

As the digital mode JT65 relies on bandwidths or bins of 2.9 Hz, it has generally suffered if stations are not stable. The view has been that, at microwave frequencies, the frequency spreading due to libration and Doppler from the moon would rule it out for EME. Joe Taylor has included an AFC system that copes with around 20 Hz of frequency shift, providing it is reasonably consistent and the signal is a few dB above the minimum level. The JT65C version has twice the tone spacing of the JT65B version, which allows it to cope somewhat better with libration frequency spreading. All versions of JT65 still use 2.9 Hz bins, but the JT65B and C versions use algorithms to assess the likely frequency of tones using either two (JT65B) or four (JT65C) bins. This

arrangement does increase the effective noise bandwidth and reduce performance by about 1 dB for JT65B and 2 dB for JT65C. The advantage of this approach is that tones can be shifted up to two bins or 6 Hz either way on JT65C and still be identified in their correct bin. JT65 also uses a heavily redundant forward error correcting code such that if a number of tones go outside their correct group of bins, it can still recover a message accurately.

Despite these advances, the prevailing view was initially that JT65 started to fall off in performance at 432 MHz and was unlikely to be useful at much higher frequencies. Over the last two years it has been found that, in most cases, the limitation is not libration or

Doppler shift from the moon but the stability of amateur rigs. As stability has been improved, it has been found that JT65 works very well on 432 MHz and in the last 12 months QRP (5 watt) contacts (VK7MO to VK4AFL) have been achieved on 1296 MHz. Recently, the first 2300 MHz JT65 QSO was reported between W5LUA and WW2R. Following this Rex VK7MO (2.3 metre dish) conducted one-way experiments with Sergei RW3BP (3 metre dish) who copied his 2301.965 MHz JT65C signal in Moscow at 3 watts. The key to this improvement is that both stations were GPS locked. At 100 watts, Sergei could not copy CW confirming that JT65 maintains around 13 to 14 dB advantage over CW - something that applies from VHF up at least to 2300 MHz. At

2300 MHz Doppler shifts can be 10 Hz or more during a JT65 transmission, which means it is starting to be at the limit of AFC. Thus future extensions of JT65 to even higher frequencies are likely to depend on some means of automatic correction for Doppler Shift. Also, libration frequency spreading will undoubtedly become the limiting factor at some stage but it seems, because of the forward error correction code, this will be well above 2300 MHz. Thus there is still plenty of potential to extend the use of JT65 to even higher frequencies.

Following the tests reported above, a two-way QSO was completed with Jan and Vladimir, OK1KIR, who uses a 4.5 metre dish and VK7MO with a 2.3 metre dish. Due to frequency instability at OK1KIR's end, it was generally not possible to achieve JT65 decodes, but by waiting long enough for his rig to by chance give less than 25 Hz drift

in a transmission, a single decode was obtained. Then a QSO was completed using the shorthand messages, which even with drift can be readily read from a waterfall display. Encouraged by this, Jan borrowed a high stability HP signal generator and a QSO was easily completed with perfect copy for more than an hour, thus confirming that the secret to using JT65 at the microwave bands is frequency stability.

Now that small station EME is possible at 2300 MHz, some consideration needs to be given to frequency allocations. The USA operate on 2304 MHz, Europe on 2320 MHz with Japan up on 2424 MHz. While we have access to 2424 MHz in VK, it has become almost useless in city areas due to computer wireless links and other uses. However, we still have a 2 MHz segment between 2300 and 2302 MHz. While it is not in accordance

with their bandplans, the USA and many European countries can operate down to 2300 MHz. However, as international stations will have to tune away from 2304 MHz it is best to use the highest part of our 2 MHz segment. Until practice shows otherwise, suggested arrangements are:

- 2301.900 to 2301.950 CW,
- 2301.950 to 2302.000 JT65 with 2301.965 being the JT65 focus frequency

This arrangement is consistent with practice on 1296 MHz where arrangements are:

- 1296.000 to 1296.050 CW,
- 1296.050 to 1296.100 JT65 with 1296.065 being the JT65 focus frequency

Please send any Digital DX Modes reports to Rex VK7MO at rmoncur@bigpond.net.au

The Magic Band – 6 m DX

Brian Cleland – VK5BC

The expected winter Sporadic E season proved to be a fizzer with very few openings in June. The openings that did occur were in general not of long duration with poor signal strengths and QSB.

John VK4FNQ in Charters Towers reported conditions were very poor in June with very few openings logging only the following contacts:

19th June; Rod VK3TG (Kyneton) & Kevin VK3WN (Ballarat) both with heavy QSB

25th June; Rob VK3XQ, Alex VK5ALX (Whyalla) & Col VK5RO (Adelaide).

John also reports hearing the following beacons:

19th June VK5RBV (Barossa) 559, VK5VF (Adelaide) 419

20th June VK5RBV 419

25th June VK3RMV (Wannon) 519, VK5RBV 519, VK2RHH (Hunter Valley) 529 & VK2RSY (Sydney) 419.

Kevin VK4BPK in Mackay fared a little better, using an IC-706MKIIG, 100 watts & a 3 element home brew Yagi reports working the following:

24th June Rob VK3XQ 4/3,

25th June Rob VK3XQ 5/7, John VK2BHO 5/4 & Rod VK3TG 4/1,

30th June Brian VK5BC 5/7,

2nd July Rob VK3XQ 5/3, John VK2BHO 5/8

4th July Rob VK1ZQR 5/1, Rob VK3XQ 5/2,

8th July Paul VK2YVG 5/5, Norm VK3DUT 5/6, Brian VK5BC 5/9+ & Rob VK3XQ 5/7.

Andru VK4KAY also in Mackay reports that they had their coldest and wettest June on record. Andru says "Band conditions reflected the misery of the weather with no openings recorded from 1/6/07 through to 23/06/07, all very quiet. There seemed to be a pattern to 6 m openings up to the beginning of June. Andru at work – 6 m opens, Andru at home – 6 m closed.

However the weather patterns changed around this 23rd June and I have recorded the following in my log."

24th June – 6 m opening late in the afternoon! Around 5 pm. Could hear the 10 m VK3 beacon mobile. I could hear VK2 and VK3 stations talking on 50.110 while mobile in the truck – however couldn't get signals strong enough to make any

contacts. The opening lasted about 1 hour.

30th June – could hear the VK3 and VK5 beacons on 10 m sometime after lunchtime. Was mobile at the time in the truck. Called 50.110 for about 0.5 hours with no answer, however later in the afternoon Kevin VK4BPK did make some contacts.

8th July. Around 1.15 pm could hear VK TV carrier 46.240 around SI and VK TV carrier 57.250 also around SI. Picked up the VK5RBV beacon on 50.315 within 5 minutes or so at 5/0, but disappeared within 20 minutes, 2 pm 50.130 VK5BC up to 5/5 – easy contact with QSB but signal audible at all times, 2.15 pm 50.110 VK3XQ up to 5/0 – signal marginal using phone. Heard Rob on CW around 50.1095 coming through 5/2, good solid signal and gave him a call to let him know that I could hear his CW. 2.20 pm VKTV CH1 57.260 came up to about S3 and soon after VKTV CH2 62.250 up to S1, Signals stayed around for

continued on page 52

Milestone achievement at Bochum

This amazing achievement was announced last month on the AMSAT bulletin board by Peter Guelzow DB2OS. It is an important milestone for the Marburg team on their way to P3E and the Mars project P5-A. It concerns the results of tests carried out in 2006 using the 20 metre tracking dish at Bochum in Germany. The AMSAT-DL/IUZ team were able to detect signals from the Voyager-1 interstellar probe. Imagine that! The Voyager-1 probe is the farthest object from earth ever built by humans. In March this year it passed the 100 AU distance. One Astronomical Unit (AU) is the average distance of the earth from the sun and is a common measurement used in astronomy when large distances are involved. It is an extraordinary feat to detect signals from such a distance and it proved beyond doubt the ability of the Bochum installation to cope with the challenges of the forthcoming Mars probe. Those among us who relish a challenge of their own may like to follow the links on the AMSAT-DL web site and read of the amateur radio beacon planned for the Mars project. This could represent the greatest challenge any amateur radio operator could face. I reckon one could hang up one's spurs after receiving this spacecraft's beacon whilst on its way to Mars. Think about it. You could take part in what may be the ultimate frontier of amateur radio. Last month the Bochum team received a message from the JPL Voyager Flight Team congratulating them on their outstanding achievement. The message included a picture of the entire JPL team showing members holding a poster of the reception report from Bochum. It was signed by Roger Ludwig on behalf of the Voyager Flight Team. Well done AMSAT-DL/IUZ.

Happy Birthday AO-7 – again!

AMSAT-OSCAR 7 was launched on 15 November 1974 from Vandenberg Air Force Base in the USA. So it would have had its 5th birthday in 1979. AO-7 followed its predecessor AO-6

(1972) which was the first successful linear transponder bird. AO-7 provided many years of service but eventually succumb to battery failure in mid 1981. Remarkably on 21 June 2002, some 21 years later, Pat Gowen G3IOR reported hearing an odd signal that seemed to be transmitting Oscar style CW telemetry, it had the old familiar HI HI followed by a string of numbers in groups of three. It proved to be AO-7 – and it's been an astonishing ride ever since. Pat was the first to hear and report the signals and it's been 5 years since that time. Happy 5th birthday, again, AO-7. Good luck to those using the old satellite. Please respect the fact that it is well beyond its "use-by" date. Please follow the recommended procedures for operation so we can all enjoy the clear signals and high orbit of this amazing bird. In the absence of the HEOs its wide footprint represents our best hope for some limited DX at present in this part of the world. Make a practice of listening regularly to the beacon. Stop transmitting if it's found to be "FM-ing".

What band is that?

Amateur radio is full of jargon. Amateur radio satellite operators have to cope with more than their share. We read of a particular satellite as having a "mode LS" transponder. What does this mean? It means that the satellite has on board transmitters and receivers which operate in the "L" and "S" bands. They are coupled to produce a transponder operating in the above mode. No surprises so far, but it assumes you know what the expression "L" and "S" bands mean. The lettering system is a sort of shorthand which makes it easier for engineers to talk of these things without repeating lots of numbers. Here is a list of the more common ones associated with commercial satellites and broadcasting.

Band	Frequency
"L"	1.0 - 2.0 GHz
"S"	2.0 - 4.0 GHz
"C"	4.0 - 8.0 GHz
"X"	8.0 - 12 GHz
"Ku"	12 - 18 GHz
"K"	18 - 27 GHz

The AMSAT group in Australia

The National Co-ordinator of AMSAT-VK is Graham Ratcliff VK5AGR. Contact Graham if you wish to be placed on a mailing list for breaking news and net reminders. As a forum for members AMSAT-VK operates two monthly nets.

AMSAT-Australia Echolink Net

The "Echolink" net meets on the second Sunday of each month. Anyone with an interest in Amateur Radio Satellites is welcome to join the net. Graham VK5AGR acts as net controller. The net starts at 0500 UTC during summer time periods and 0600 UTC during winter standard time periods. Connect to the AMSAT conference server on Echolink a few minutes before these times.

AMSAT-Australia HF net

The HF net meets informally on the second Sunday of each month. In winter (end of March until the end of October) the net meets on 3.685 MHz at 1000 UTC. In summer (end of October until end of March) the net meets on 7.068 MHz at 0900 UTC. Start listening 15 minutes before these times. All communication regarding AMSAT-Australia matters can be addressed to:

AMSAT-VK
9 Homer Rd
Clarence Park SA 5034
Graham's e-mail address is:
vk5agr@amsat.org

"Ka" 27 - 40 GHz

"V" 40 - 75 GHz

"W" 75 - 110 GHz

So a mode LS transponder will require the user to transmit in the "L" band and listen in the "S" band. The above listings are commercial in nature and generally refer to services offered by commercial communication satellites. Amateurs use an extension of this system which includes the "V" band, meaning VHF, usually 2 metres and the "U" band meaning UHF, usually referring to the 70 cm band. Thus one of the most popular combinations used on recent satellites has been mode-US where the user transmits in the 70 cm band and receives in the 2.4 GHz band. Future HEO satellites will carry a matrix of transmitters and receivers capable of being switched into almost any combination, limited only by the available antennas on the satellite.

continued next page

Silent key

Alf Webb OAM, VK2UC

It is with deep regret that I advise that one of our members, Alf Webb VK2UC, is now Silent Key.

Alf was a very long standing amateur and resident of Lismore, and was approaching the wonderful age of 102 at his passing.

He was born on 10 September, 1905 in the London suburb of Islington, and migrated to Australia in May, 1911 where the family moved to the North Coast area.

He served in the 15th Light-horse Regiment from 1924 to 1931. In 1940 he joined the Army Volunteer Defence Corps until entering Army Signals in

1943 where he served until his discharge in June, 1946.

Introduced to amateur radio by a cousin in 1922, Alf obtained his AOCF in 1947, and remained an active amateur operator on CW and phone until a few short months before his passing.

He joined the (then) PMG in Lismore in 1947 and retired from (the now) Telstra in 1969.

In 1990 he was awarded the Order of Australia Medal for service to the RSL and the community.

Alf was a foundation member of SARC, and was also President in 1984.

Later he was made a Life Member of SARC.

He was Australia's oldest active amateur, being active on air every day on Morse and voice until a few months before his death.

Alf's funeral was held at St Andrew's Anglican Church, Lismore on 19 July.

Known, liked and missed by many on the North Coast.

Vale Alf Webb OAM VK2UC, SK.
Forwarded by John Alcorn VK2JWA, on behalf of Summerland ARC, Lismore.

AMSAT continued

More pressure to auto-track

Life just becomes more and more complicated these days. There was a time when the LEO satellites were workable easily with very rudimentary gear. This is still true to a degree today and the newcomer is being well catered for - but the writing is on the wall. Frequencies will keep going up, no doubt of that. In terms of terrestrial amateur radio that doesn't present much of a problem. Satellite communication is a different matter. There's the ever present problem of Doppler shift correction. Some current satellites overcome this by using FM where frequency tuning is much more forgiving than SSB. Given that however,

the right technology can facilitate SSB comms right up to UHF and higher. It is being done now, as we speak. Tracking programs are available to tune your radios to compensate for Doppler to an accuracy which enables "hands-off" working by SSB. They implement full two-way Doppler compensation which by tuning both receiver and transmitter, keep the contact on the same frequency on the satellite transponder. Sounds complicated? It certainly would be if you tried to do it by hand. You would go crazy. Modern computers and radios can do it though and it points the way to the future of amateur radio satellite communications. Imagine a LEO satellite streaking overhead or a HEO doing the same around perigee and there

you are conducting a QSO while your radio is being controlled by the laptop to keep everything in line. Nothing new about that of course. Many people, myself included, have been doing it on the digital birds for 15 years or more. But now the "ante has been upped" many times over. Frequencies like 1269 MHz and SSB to boot make even those systems look old hat and unable to cope. If you are intending to stay with amateur radio satellites for a while, you will no doubt encounter these changes. Save yourself a lot of heart-ache by reading up on the future of this area, particularly if you are thinking of upgrading your radio gear or computer soon.

VHF/UHF - an expanding world continued

about 30 minutes and then faded out, unfortunately no other stations heard

On 23rd June, Dave VK5/SWL reported hearing Norm VK3DUT 5/5 with QSB working Bob VK3AJN as well as the Sydney VK2RSY beacon. Norm VK3DUT also reported the VK5RBV Barossa beacon at 559.

The best opening for June occurred on the 24th June with the band open from VK4 (Brisbane to Mackay) to VK2, VK3 & VK5. Wayne VK4WS & Adam VK4CP were in the thick of the action

working many stations including VK5's ZLX, ADO, KBR, VK2's ADB & FHN, and VK3's XQ & DUT. Peter VK5ZLX also worked Trevor VK4AFL, Rob VK4TWR Gladstone & VK4CRO.

Rod ZL3NW near Christchurch reported hearing the VK2RHV Hunter Valley, VK2RSY Sydney & VK7RST Hobart beacons on the 28th June. At the same time the Hunter Valley beacon was audible in VK5.

30th June: Brian VK5BC found both the Townsville VK4RTL & Alice Springs VK8RAS beacons were

audible and on calling north worked Jeff VK8GF Alice Springs & Kevin VK4BPK Mackay.

On 5th July, both the Sydney VK2RSY and Hunter Valley VK2RHV beacons were audible in VK5 and on the 8th July Scott VK4CZ Brisbane reported hearing both VK7RST & VK7RAE beacons and working Rob VK3XQ 5/4.

Please send any 6 m information to Brian VK5BC at bcicland@pickmowl.com.au

VK2

SARC outing: 30th anniversary of club repeater VK2RSC

John Alcorn VK2JWA

The Summerland Amateur Radio Club celebrated the 30th anniversary of their club repeater VK2RSC on Saturday 8 July 2007 with a club picnic at the repeater site, Parrots Nest, about halfway between Lismore and Casino, on the Bruxner Highway.

The weather was fine, and it was determined that the day was a great opportunity for some heliograph practice.

Rob Gallagher VK2KGK, who lives on Hogarth Range, some 45 kilometres to the west of the Parrots Nest site, had taken an Mk V heliograph to his QTH, and set it up, while I had set up a Mk V and 25 cm (10") US type heliograph

on site.

We had agreed to liaise on two metres and, after some trial and error, Rob got the flash from my large mirror, giving him an aiming point for his heliograph, and in a short time we also received his flash, which was easily visible over the 45 kilometre path.

We then exchanged Morse letters, slowly, HIHI.

Dave VK2ZDR and Amy VK2FCAT also practised using the device, and were quick to learn the technique. After this, Rob packed up and drove

down to join the group

All in all, beautiful weather, good company, an enjoyable BBQ meal, and some amateur radio fun. An excellent day.

The photos give a glimpse of the activities enjoyed.

ar



Photo 1: Dave VK2ZDR and Amy VK2FCAT practising with the heliograph training mirror.



Photo 2: The tower upon which VK2RSC lives

SUNFEST 2007

The Sunshine Coast Amateur Radio Club

0900 hrs Saturday 8 September 2007

(Sellers from 0700 hrs)

Woombye School of Arts

Blackall Street, Woombye (UBD Map 66 F12)

Reservations for table space—Contact: Richard VK4YRP

(07) 5492 9898.

Email: randwphilp@bigpond.com

Hamfests

SADARC Shepparton

Sunday 9 September

plus10@optusnet.com.au

GCARC Gold Coast

Saturday 6 October

catchcryhamm@yahoo.com

BARG Ballarat

Sunday 4 November

vk3axh@barg.org.au

Hamads *classifieds* **FREE**

FOR SALE NSW

- School PA amp tuner in steel case, 1200 mm by 580 mm. Valve amp includes turntable. Best offer gets it. Scotty VK2KE mob 04 3821 8897 or gsc08077@bigpond.net.au

WANTED NSW

- Healthkit RX-1 amateur receiver to complete my Heathkit line-up. Thank you Greg Price VK2GWP, QTHR. Phone 02 4958 1541, mob 04 1128 9327 or vk2gwp@bigpond.com
- A good condition AM FM RF Signal Generator complete with manual. The manual can be photo cop ed. R.Cannan. VK2LJC. 02 4295.1227. wric@southemphone.com.au

FOR SALE VIC

- COLLINS designed, MOTOROLA built communication receiver R-390. Not the 'A' version but the scarier model but covers the same frequency range of 500 kHz to 30 MHz. Full details on request and if unfamiliar with the breed, get advice from seniors who were around these classics in the 60's. Repainted, cleaned and realigned, excellent condition. \$1150 plus freight, local collection desirable. VK3IZ QTHR. Phone 03 5156 2053 or email jupete@bigpond.net.au
- Yaesu FT-101E. Excellent condition plus new spare PA tubes, plus Yaesu YO-100 monitor scope and SP-101B speaker, the full Yaesu line Service manuals for both units \$450 the lot. Phone John VK3BAF QTHR. Phone 03 8502 8627

WANTED VIC

- Pakrati 232 MBX modem in good order. Roc Kirby VK3AKH. Fax 03 9331 6310, or email roc_kirby@roadshow.com.au

FOR SALE QLD

- 3 x GME 12 volt 35 amp linear power supply \$120.00 each
- 3 x CODAN HF Radio, model 9323-H, 2-30 MHz, complete with 400 watt amplifier and 24 volt 40 amp power supply, free-tune TX and RX \$1900.00 each (will separate items)
- 3 x 19 inch equipment rack frames, 1345 mm H, 540 mm D \$150.00 each. Equipment is in Brisbane QLD and would hope for local pick-up from me, but can arrange postage if required at cost. Mob 04 0949 3303

WANTED QLD

- Copy of manual and circuit of Yaesu Muse antenna tuner model FC-700. Brad Booth VK4CDL, 48 Gregory Street, Cardwell. 4849.
- Copy of owner manual and circuit, if possible, for Microlog AIR-1 CW Morse code module. Will cover costs. Brad Booth VK4CDL, 48 Gregory Street, Cardwell 4849.

FOR SALE SA

- VK5JST antenna analyser kits [see AR article May 2006]. Improve your HF antenna efficiency. Buy and build this world-class analyser. For more details see www.scarc.org.au; contact SCARC PO Box 333, Morphett Vale, SA 5162, or email: kits@scarc.org.au

WANTED SA

- I am looking for a schematic for the 1963 vintage Heathkit Jr "Transistor Diode Radio Kit", or better still, the radio itself. The radio was marketed as the Model R-110. I'd be interested in the kit's instructions, assembly notes, or any other diagram that accompanied the kit. Phone Hank VK5JAZ on mobile 04 0328 5940 or email vk5jaz@hotmail.com

WANTED TAS

- Can anyone help with an AM/FM board for ICOM IC-7257? If so, please email groaves@supernerd.com.au or sms to 04 1715 8753. VK7NBJ.

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The Wireless Institute of Australia represents the interests of all amateurs throughout Australia.

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National Office	Contact	News Bulletin Schedule
10/229 Balaclava Road Caulfield North VIC 3161 PO Box 2175 Caulfield Junction Vic 3161 Australia	Phone 03 9528 5962 Fax 03 9523 8191 10am to 4pm daily nationaloffice@wia.org.au http://www.wia.org.au	Subject to change. See www.wia.org.au follow National News prompts. Contact nationalnews@wia.org.au National VK1WIA news is distributed to all states.

Advisory Committees	Contact	News Bulletin Schedule
VK1 Australian Capital Territory VK1WX Alan Hawes VK1ZPL Phil Longworth VK1ET John Woolner VK1GH Gill Hughes	vk1advisory@wia.org.au	Sundays at 11.00 am VK1WIA 7.128, 146.950, 438.050 Canberra Region Amateur Radio Club Email newsletter will be sent on request to president@vk1.ampr.org
VK2 New South Wales VK2QV Chris Flak VK2XCD Chris Devery VK2BFN Adrian Clout	Phone 02 9651 1490 vk2wi@ozemail.com.au vk2advisory@wia.org.au	VK2WI - Sunday 1000 and 1930 hours local. 1.845; 3.595; 7.146; 10.125; 14.170; 28.320, 52.525; 145.600; 147.000; 438.525; 1273.500 megahertz. Plus regional relays. 5423.5 kHz (morning) VK1WIA news included in the morning
VK3 Victoria VK3JJB John Brown VK3PC Jim Linton VK3AFO Peter Mill	Phone 03 9885 9261 arv@amateurradio.com.au	VK1WIA, Sunday 11 am and 8 pm, 3.615 and 7.085 (LSB), 10.130 (USB), VK3RML 146.700, VK3RMM 147.250, VK3RMI 438.075.
VK4 Queensland VK4BY Don Wilchefski VK4ZZ Gavin Reibelt VK4KF Ken Fuller	vk4advisory@wia.org.au	VK1WIA, Sunday 9.00 am via HF and major VHF/UHF repeaters
VK5 South Australia and Northern Territory VK5OV David Box VK5APR Peter Reichelt VK5ATQ Trevor Quick	Phone 08 8294 2992 boxesdnm@im.net.au peter.reichelt@bigpond.com vk5advisory@wia.org.au	VK5 South Australia VK5WI: 0900 hrs local time. 1.843 LSB, 3.550 LSB, 7.140 LSB, 28.470 USB, 53.1 AM, 147.000 FM Adelaide, 146.900 FM South East, 146.925 FM Central North, 439.975 FM Adelaide North. VK8 Northern Territory 0900 local time 3.555 LSB, 7.050 LSB, 10.130 USB, 146.900 FM.
VK6 Western Australia VK6NE Neil Penfold VK6XV Roy Watkins VK6OO Bruce Hedland-Thomas	Phone 08 9351 8873 http://www.vk6.net/ vk6advisory@wia.org.au vk6ne@upnaway.com vk6xv@bigpond.net.au	VK6WIA: 146.700 FM(R) Perth at 0930 hrs Sunday relayed on 1.865, 3.564, 7.075, 10.125, 14.116, 14.175, 21.185, 29.120 FM, 50.150 and 438.525 MHz. Country relays 3.582, 147.200 (R) Catby, 147.350 (R) Busselton, 146.900 (R) Mt William (Bunbury), 147.000 (R) Katanning and 147.250 (R) Mt Saddleback. Broadcast repeated on 146.700 at 1900 hrs Sunday relayed on 1.865, 3.564 and 438.525 MHz : country relays on 146.900, 147.000, 147.200, 147.250 and 147.350 MHz. Also in "Realaudio" format from the VK6 WIA website
VK7 Tasmania VK7ZAX Phil Corby VK7DG Dale Barnes VK7KK Reg Emmett	Phone 03 6234 3553 vk7advisory@wia.org.au phil.corby@tassie.net.au vk7dg@wia.org.au regemm@ozemail.com.au	VK1WIA Sunday 9 am on VK7WI network: 1.840 AM, 3.570 MHz LSB, 146.700 FM (VK7RHT South), 53.825 FM (VK7RAD South), 147.000 FM (VK7RAA North), 146.750 FM & 53.825 (VK7RNW North West), 146.625 FM (VK7RMD North West), UHF CB Channel 15 (Hobart) and 27 MHz CB - 27.225LSB (Hobart). Followed at 9:30 am with VK7 Regional News Broadcast also on 7.090 LSB & 14.130 USB

Notes

1. Only three members of the state advisory committees are listed.
2. All listings are preliminary. They will be updated each month as required.
3. Membership application forms are available from the WIA web site www.wia.org.au or the national office address above.

Gippsland Microwavers



L to R: Rob VK3EK, Ralph VK3WRE, George VK3HV, Tom VK3XBG, Ken VK3DMW, John VK3ZRX and Peter VK3KAI.

Photo by Denis VK3ZUX.

About 10 years ago, a small number of individual amateurs in the Latrobe Valley in Victoria were interested in weak signal VHF/UHF and microwave communications. The result of their discussions was the running of the first GippsTech Conference in 1998.

The Conference has increased interest locally and more broadly around south eastern Australia and beyond. The 10th annual GippsTech event was held in early July – see our report inside the magazine.

The photo shows some of the Gippsland Microwave operators with just a small sample of their gear.

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